

CENTROCNEMINAE, A NEW SUB-FAMILY OF
THE REDUVIIDAE
(HEMIPTERA-HETEROPTERA)

BY

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CENTROCNEMINAE, A NEW SUB-FAMILY OF THE REDUVIIDAE (HEMIPTERA-HETEROPTERA)

By N. C. E. MILLER

THE genus *Centrocnemis* was erected by Signoret in 1852 (*Ann. Soc. ent. France* : 545) for the species *deyrollii*. Subsequently the following species were added to the genus : *signoreti* Stål (1863, *Ann. Soc. ent. France* : 48), *granulosa* Stål (1866, *Öfv. Vet. Ak. Förh.* : 244), *ståli* Reuter, (1881, ad *Cognit. Reduv. Mundi Antiqui* : 65, *Acta. Soc. Sci. fenn.* : 12), *philippinensis* Distant, (1902, *Ann. Mag. nat. Hist.* (7) 10 : 181), *formosana*, Matsumura (1913, *Thous. Ins. Japan, Addit.* 1 : 161) and *roepkei* Miller, (1955, *Tijdschr. Ent.* 98 : 61).

Recently, however, in the collection of the British Museum (Nat. Hist.) London and in collections received from the Naturhistoriska Riksmuseum Stockholm, Sweden, the Zoologisch Museum Amsterdam, the Rijksmuseum van Natuurlijke Historie Leiden, The Netherlands and the Zoologisches Institut Berlin, Germany, several new species have been discovered. I have described and figured these as well as all the other species referred to above.

A close study of the species at present assigned to the genus *Centrocnemis* has revealed, however, that not all of them actually should be placed in it. For these I have erected the following new genera : *Neocentrocnemis*, *Paracentrocnemis* and *Centrocnemoides*.

It is also evident that none of the genera should be placed in the sub-family Reduviinae, in which they are at present, mainly on account of the structure of the rostrum which is composed of four visible segments (Fig. 1, A). The type of glandular system also is different from that of the Reduviinae, and indeed from that of most other sub-families, in that the glands are paired in the adult with the ostioles of one pair situated in the metasternal depressions and close to the inner margin of the acetabula and the other pair with the ostiole located on the metapleural epimeron and near its basal margin. The location of a single pair of ostioles in the metasternal depressions is characteristic for most adult Reduviidae.

I have examined the genitalia of most of the species dealt with in this paper and have found that they are very similar structurally. In view of this I have figured the aedeagus of one species only—*Centrocnemis truculenta* sp. n. (Fig. 1, B).

Its principal features are the short basal plates and the two filamentous processes arising from them. These are thickened at the point of attachment with the basal plates and serve to join them to the wall of the pygophore.

The vesica is strongly sclerotized throughout, is bilobed apically and on each side of it a moderately wide area of the conjunctiva is more highly sclerotized than the

remainder. In many Reduviidae the lateral arms of the basal plates are relatively very long and somewhat slender.

Members of the sub-family Centrocneminae sub-fam. nov. are somewhat poorly represented in collections and, on the whole, would appear to be rare.

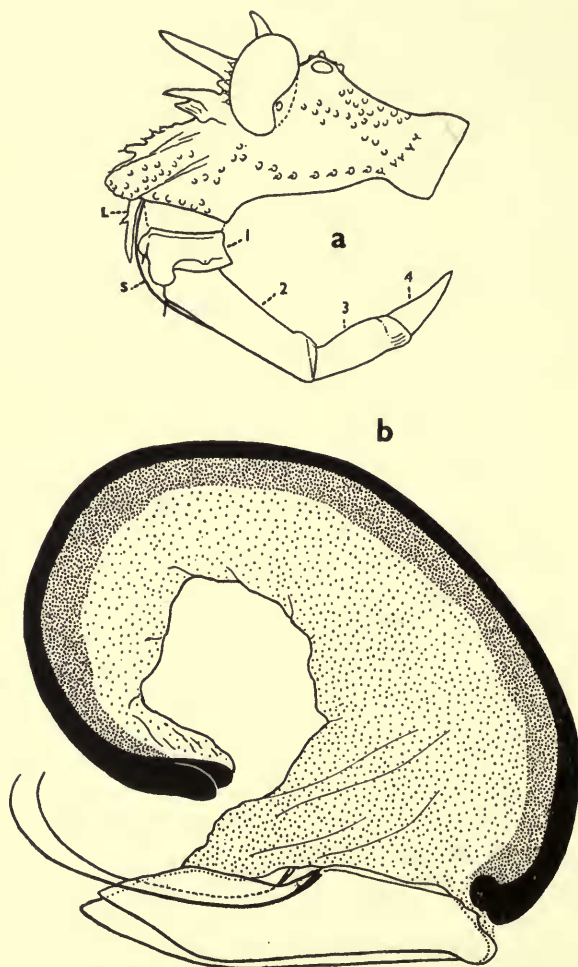


FIG. 1. A. *Neocentrocnemis signoreti* (Stål), gen. n., head and rostrum (lateral view).
B. *Centrocnemis truculenta* sp. n., aedeagus.

The present known distribution of the genus *Centrocnemis* is Northern India and Malaysia; of the genus *Neocentrocnemis*, Malaysia, Celebes, the Philippine Islands, Indo-China and Formosa; of *Paracentrocnemis*, S. India and Ceylon; and of *Centrocnemoides*, Malaysia (Malay Peninsula, Sumatra and Java).

So far as I am aware there is no information regarding the biology of members of this sub-family existing, apart from the fact that they have all been found on

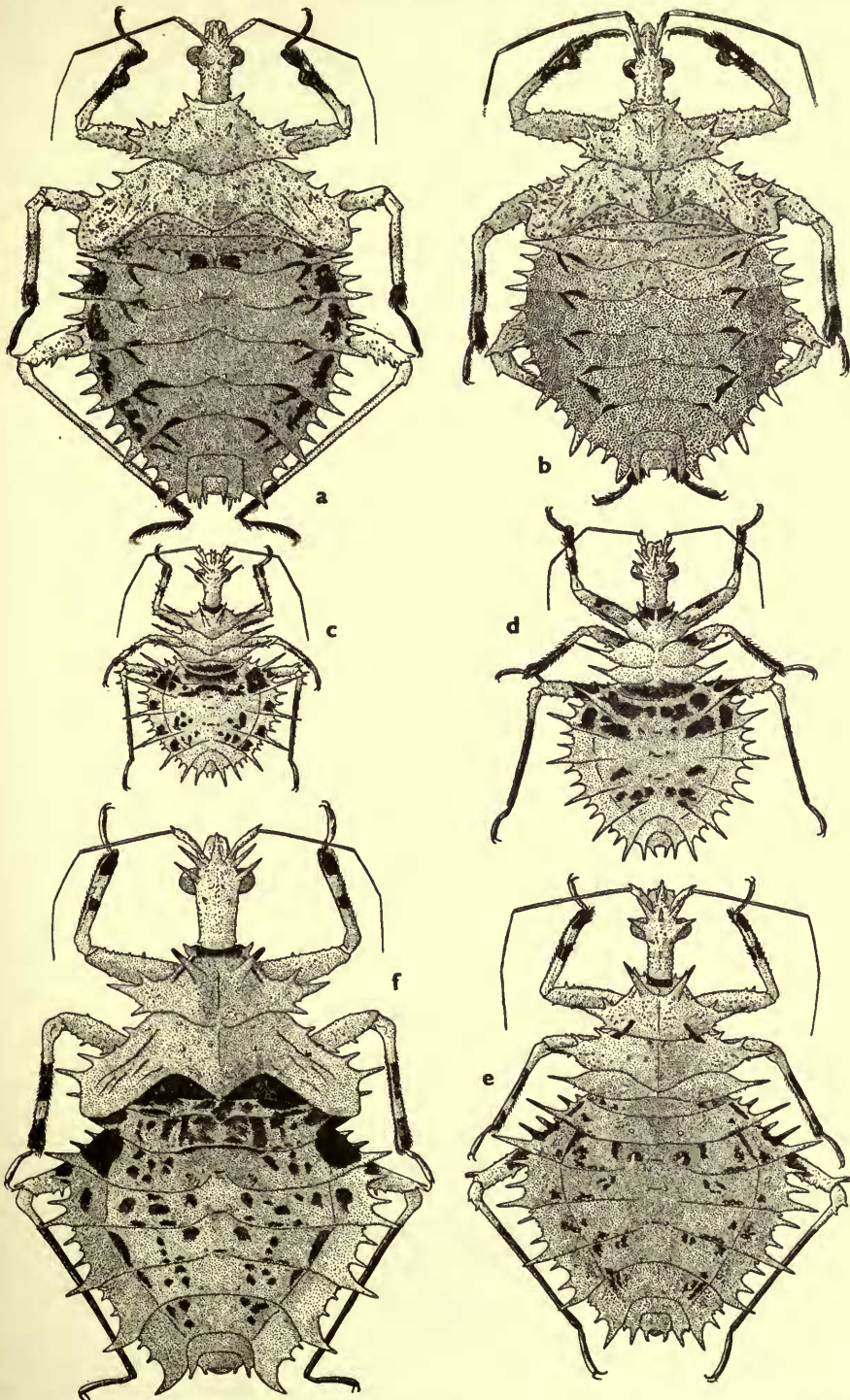


FIG. 2. A. *Centrocnemis leprosa* sp. n., 5th instar neanide. B. *Centrocnemis truculenta* sp. n., 5th instar neanide. C. *Neocentrocnemis signoreti* (Stål), gen. n., 2nd instar neanide; D. *idem* 3rd instar; E. *idem* 4th instar; F. *idem* 5th instar.

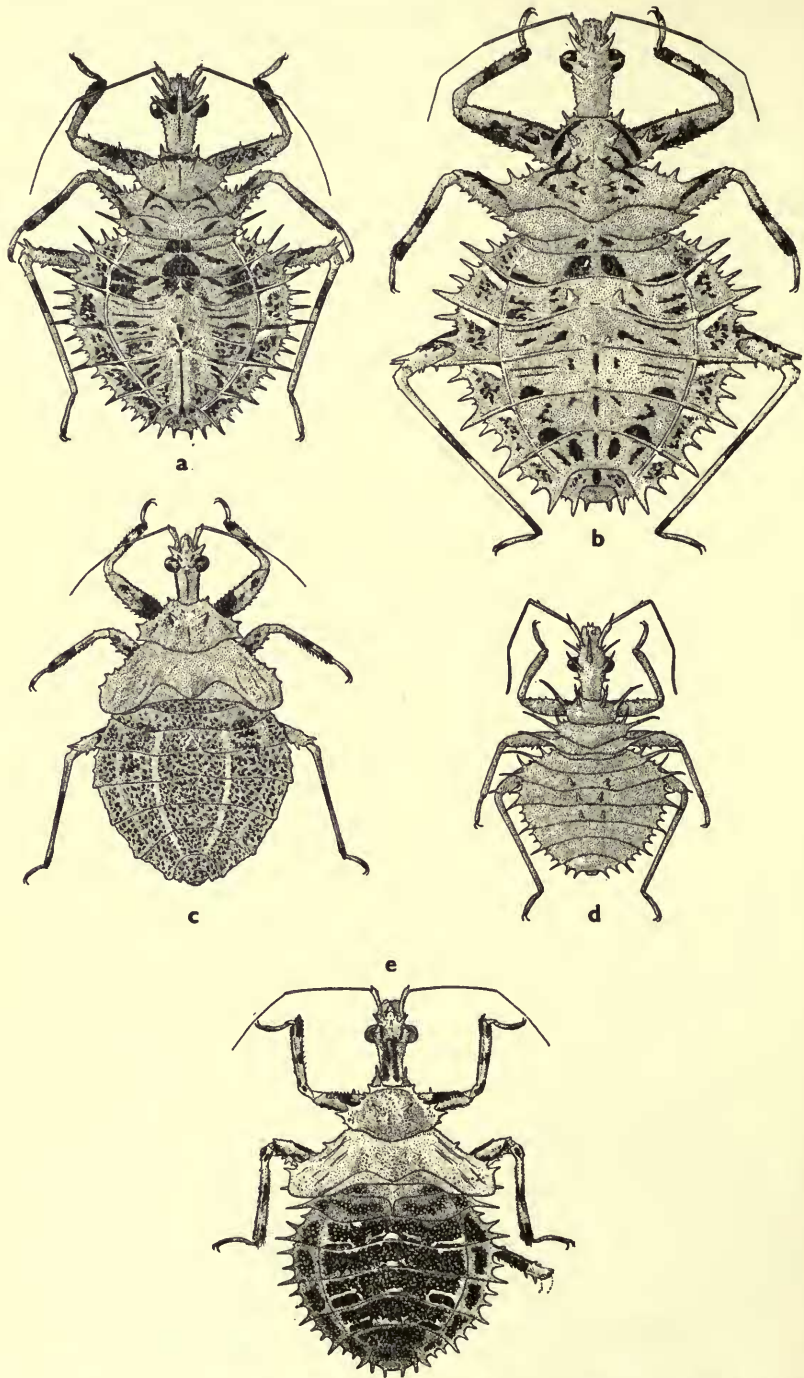


FIG. 3. A. *Neocentrocnemis palawanica* gen. n., sp. n., 3rd instar neanide; B. *idem* 4th instar; C. *Paracentrocnemis campbelli* gen. n., sp. n. 5th instar neanide; D. *Paracentrocnemis rugipennis* gen. n., sp. n., 3rd instar neanide; E. *Centrocnemoides drescheri* gen. n., sp. n., 5th instar neanide.

trees in primary forests and in one case, at least, attraction to artificial light has been reported.

The somewhat flattened habitus of both neanides and adults suggests that for at least some part of their existence they are sub-corticolous. They have the mid-ventral area of the abdomen distinctly flattened—a characteristic of certain genera belonging to the Reduviinae, namely, *Velitra* Stål, *Staliastes* Kirkaldy and *Sminthus* Stål, which are known to favour that type of habitat.

I express my thanks to Professor Teiso Esaki, Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka, Japan, for the type of *Neocentrocnemis formosana* (Matsumura); to the Director of the Zoologisch Museum Amsterdam, The Netherlands, for the type of *Neocentrocnemis roepkei* (Miller); to Dr. René Malaise, Naturhistoriska Riksmuseum Stockholm, Sweden, for the types of *Neocentrocnemis stáli* (Reuter) and of *Centrocnemoides granulosa* (Stål), and a paratype of *Neocentrocnemis signoreti* (Stål); to Dr. Max Beier, Naturhistorisches Hofmuseum Vienna, Austria, for the type of *Centrocnemis deyrollii* Signoret; to Dr. H. C. Blöte, Leiden Museum, The Netherlands; Professor G. C. Varley, Hope Department, University Museum Oxford, England; and to Professor Hans Sachtleben, Deutsches Entomologisches Institut Berlin, Germany, for species belonging to the sub-family Centrocneminae.

Centrocneminae sub-fam. nov.

Antennae inserted nearer to eyes than to apex of head; basal segment moderately thick with setigerous tubercles and an apical spine; segment 2 somewhat compressed and with tubercles; segments 3 and 4 slender, setose. Head moderately elongate with a spine on antennal tubercles, at upper margin of eyes, at lateral emargination of eyes and a pair of spines on vertex. Eyes sub-pedunculate; from the side reniform. Ocelli small, narrowly separated and somewhat elevated. Rostrum composed of four visible segments with tubercles on basal segment.

Body somewhat compressed dorso-ventrally. Pronotum tuberculate and with discal tubercles or spines; laterally expanded; posterior margin with a projection sub-laterally, which rests against the basal lateral scutellar spine. Prosternum with spines or tubercles at external apical angle; stridulatory furrow wide and shallow, with the striate area elliptical in outline; meso- and metasternum fused, the former carinate throughout, the latter carinate posteriorly. Pleura tuberculate; mesopleura with prominent tubercles on anterior margin which overlap part of the posterior margin of the propleural epimeron. Scutellum with apex produced, the disc somewhat depressed, tuberculate and with an erect spine basally laterally. Metathoracic glands paired with one ostiole in each metasternal depression and another ostiole at the external angle of the mesopleural epimeron.

Abdomen with external margin of connexival segments spinose or tuberculate; mid-ventrally with a flattened area with marginal carinae; spiracles small and located more or less in middle of segment. Pygophore with a triangular projection on apical margin adjacent to site of insertion of harpagones and with a triangular sub-apical elevation; 8th segment ventrally in male not normally visible; 9th

dorsal segment in female longitudinally depressed, the depression sometimes with transverse sulci with setigerous tubercles.

Hemelytra complete; vein R with cross-veins to Sc; M connected to Cu by a cross-vein, thus forming a quadrate cell; portion of R in membrane connected usually to M by a cross-vein; IA with a branch vein; metathoracic wings with Sc and R fused basally; Iv sometimes present; IA and 2A and jugal veins distinct.

Legs: Tarsi composed of three segments; anterior tibiae with or without a preapical spur on lower surface; anterior and median tibiae and trochanters with denticles on lower surface; *fossula spongiosa* on anterior and median tibiae; anterior and median femora incrassate with spines and tubercles; posterior femora with spines and tubercles; coxae tuberculate; posterior coxae widely separated.

Key to genera of *Centrocneminae*.

1. Connexivum spined 2.
- . Connexivum tuberculate 4.
2. Anterior tibiae with a rounded, dentate spur on lower surface sub-apically; segment 2 of rostrum somewhat slender, longer than segments 3 and 4 together; basal antennal segment longer than anteocular; basal half of lower surface of anterior femora concave; metathoracic wings violaceous *Centrocnemis* Sign.
- . Anterior tibiae without a spur; segment 2 of rostrum as long as segments 3 and 4 together; basal antennal segment shorter than anteocular; basal half of lower surface of anterior femora not concave 3.
3. Connexivum with long acute or triangular spines; metathoracic wings infumate *Neocentrocnemis* gen. nov.
- . Connexivum with short, narrow spines; metathoracic wings yellow *Centrocnemoides* gen. nov.
4. Metathoracic wings hyaline *Paracentrocnemis* gen. nov.

Centrocnemis Signoret

Basal segment of antennae moderately thick, longer than anteocular, tuberculate; segment 2 moderately thick and somewhat compressed; segments 3 and 4 slender. Basal segment of rostrum tuberculate; segment 2 longer than segments 3 and 4 together. Head with spines dorsally and in emargination of eyes laterally; ocelli small, elevated; eyes sub-pedunculate. Pronotum tuberculate and spinose; posterior lobe laterally expanded. Scutellum apically produced and with a basal lateral spine. Hemelytra complete. Abdomen spinose laterally. Anterior tibiae with a preapical spur on lower surface. Femora spinose and tuberculate.

Key to *Centrocnemis* species (males)

1. Anterior lobe of pronotum greenish testaceous; tubercles on disc small, distinct, white *leprosa* sp. n.
- . Anterior lobe of pronotum and tubercles dull testaceous 2.
2. Segment 2 of rostrum suffused with brown on basal two-thirds. *polita* sp. n.
- . Segment 2 of rostrum black, except apex narrowly white *truculenta* sp. n.

Key to *Centrocnemis* species (females)

1. Dorsal surface of abdomen bright red *cretacea* sp. n.
 -. Dorsal surface of abdomen ferruginous 2.
2. Lateral spines on collar very short, straight ; tubercles on head and pronotum mostly white 3.
 -. Lateral spines on collar moderately long, curved ; tubercles on head and pronotum testaceous 4.
3. Discal tubercles on posterior pronotal lobe sub-cylindrical, rounded apically ; moderately long *leprosa* sp. n.
 -. Discal tubercles on posterior pronotal lobe narrowly conical, rounded apically, short *compta* sp. n.
4. Abdomen mid-ventrally very feebly flattened ; carinae obsolescent 5.
 -. Abdomen mid-ventrally distinctly flattened and with granulose carinae 6.
5. Sub-dorsal carinae on posterior pronotal lobe with prominent, broadly conical tubercle medially *neglecta* sp. n.
 -. Sub-dorsal carinae on posterior pronotal lobe with very short, conical tubercle medially *sarawakensis* sp. n.
6. Tubercles on head, anterior lobe of pronotum and some tubercles on posterior lobe white apically *suprema* sp. n.
 -. Tubercles testaceous 7.
7. Postero-lateral margin of posterior pronotal lobe strongly concave and with a few low, rounded tubercles *malaccensis* sp. n.
 -. Postero-lateral margin of posterior pronotal lobe feebly concave with a few long, cylindrical tubercles *deyrollii* Signoret.

Type Species *Centrocnemis deyrollii* Signoret

(Text-fig. 4.)

1852, *Ann. Soc. ent. Fr.*, 545.

COLOUR. Dark testaceous. Lateral spines on collar and discal spines on anterior lobe of pronotum narrowly black apically. Scutellum, except tubercles, piceous. Segment 2 of rostrum black with whitish apex and tubercles ; segments 3 and 4 piceous. Meso- and metasternum piceous with median carina testaceous. Pleura, ventral surface of head strongly suffused with black. Lower surface of corium reddish ; membrane dark infumate with suffused black confluent spots ; metathoracic wings violaceous. Abdomen ventrally with strong piceous suffusion. Tarsi black ; apical two-thirds of anterior tibiae black with pale testaceous spot sub-apically on outer surface ; median tibiae narrowly black apically and with a wide suffused blackish median annulation ; posterior tibiae suffused with piceous except basally and a sub-apical moderately wide annulation testaceous ; anterior femora with concave lower surface and sides basally piceous ; median and posterior femora strongly suffused with piceous in basal half ; coxae and trochanters piceous.

STRUCTURE. Principal tubercles on basal rostral segment small, conical. Costal margin of corium strongly sinuate ; sparsely tuberculate. Carinae enclosing flattened area of abdomen ventrally moderately well-defined on segments 3 and 4, feeble on 5 and 6. Projections on posterior margin of posterior pronotal lobe rounded, tuber-

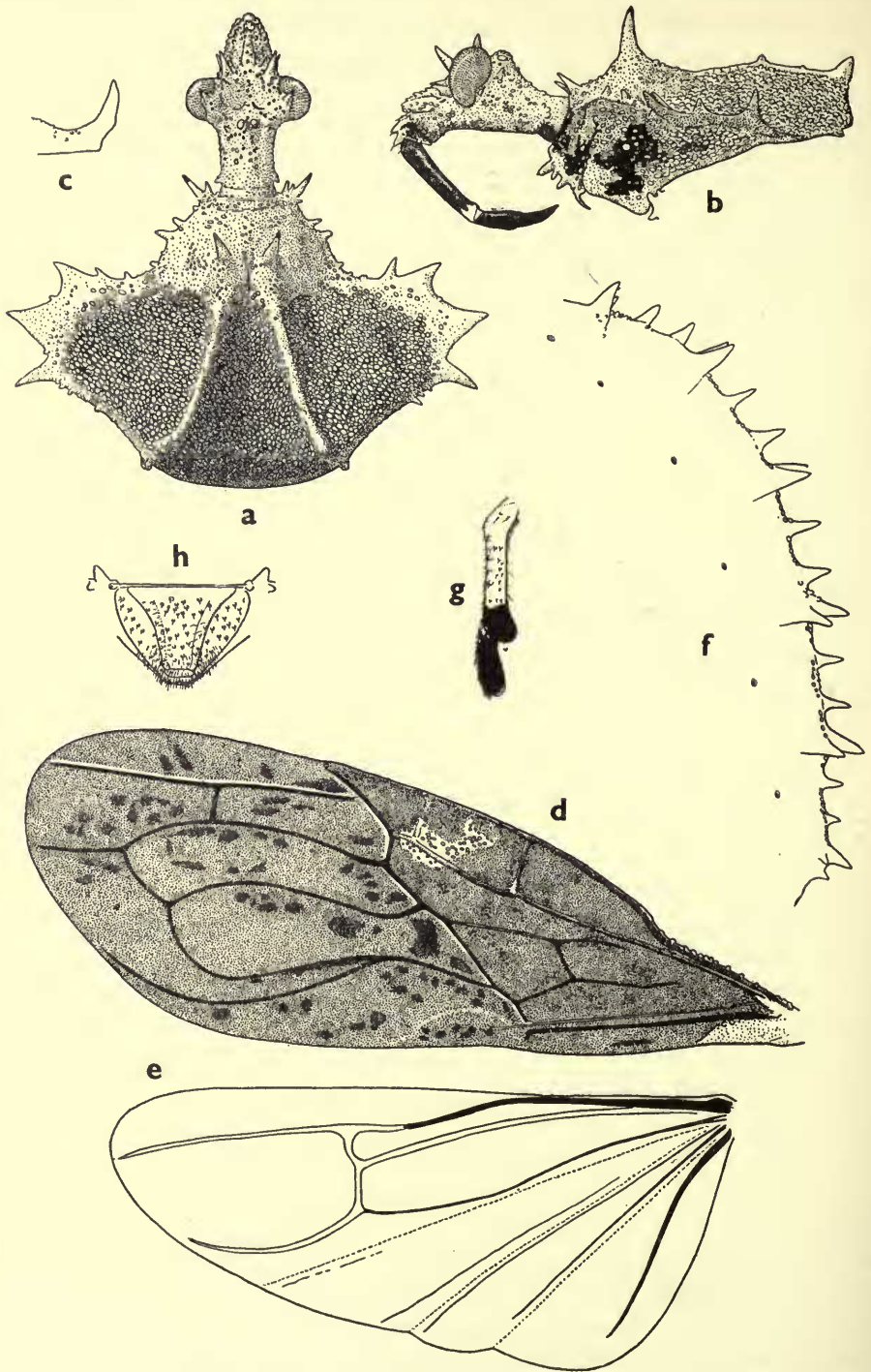


FIG. 4. *Centrocnemis deyrollii* Signoret. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. anterior tibia; H. apex of abdomen, ♀.

culate. Concave part of lower surface of anterior femora with somewhat sparse denticles and an ill-defined smooth median area.

| | |
|-----------------------------------|-----------|
| | ♀ |
| Total length | 30.00 mm. |
| Hemelytra | 21.00 mm. |
| Greatest pronotal width | 12.00 mm. |

SPECIMEN EXAMINED. One ♀ (holotype), Silhet. coll. Signoret.
Holotype in Naturhistorisches Hofmuseum Vienna.

Centrocnemis truculenta sp.n.

(Text-fig. 5)

COLOUR. Testaceous. Tubercles on head and pronotum very pale. Posterior lobe of pronotum with somewhat obscure black suffusion. Scutellum black with a testaceous annulation at base of apical spine. Corium greenish testaceous; clavus suffused with black apically; tubercles very pale testaceous; membrane dark greyish with suffused fuscous spots; metathoracic wings infumate with violaceous suffusion. Head ventrally piceous. Segment 1 of rostrum piceous with testaceous tubercles; segment 2 black, narrowly whitish apically and with whitish tubercles; segments 3 and 4 piceous. Pleura suffused with piceous. Legs greenish testaceous; anterior tibiae black in apical two-thirds with pale testaceous tubercles and spines; concave lower surface of anterior femora piceous; tubercles and spines testaceous; median and posterior femora strongly suffused with piceous; median and posterior tibiae black apically and with a wide median blackish annulation; coxae and trochanters piceous; tubercles testaceous.

STRUCTURE. Principal tubercles on basal rostral segment conical, rounded apically. Posterior lobe of pronotum with an irregular, transverse, tuberculate elevation between median tubercles on sub-dorsal carinae. Projections on posterior margin of posterior pronotal lobe very short, rounded, tuberculate. Dorsal surface of connexival segments with abundant, very small granules; apical margin of segments with a varying number of short, erect tubercles. Carinae enclosing flattened area of abdomen ventrally minutely granulose. Concave part of lower surface of anterior femora with scattered denticles and an ill-defined smooth median area.

| | |
|-----------------------------------|-----------|
| | ♂ |
| Total length | 23.50 mm. |
| Hemelytra | 15.00 mm. |
| Greatest pronotal width | 9.50 mm. |

SPECIMEN EXAMINED. One ♂ (holotype), Java (no precise locality). Holotype in British Museum (Nat. Hist.), London.

5th instar neanide (Text-fig. 2, B)

COLOUR. Testaceous. Basal segment of antennae black apically and with white tubercles; segment 2 of antennae broadly blackish testaceous basally, apically pale

testaceous; remainder black with white tubercles; segment 3 blackish with testaceous suffusion basally. Tubercles and spines, particularly the former on head and pronotum, pale testaceous. Apex of lateral spines on collar, of discal and lateral tubercles on pronotum narrowly brown apically. Granules on abdomen dorsally pale testaceous. Segment 2 of abdomen dorsally with a large elongate fuscous spot

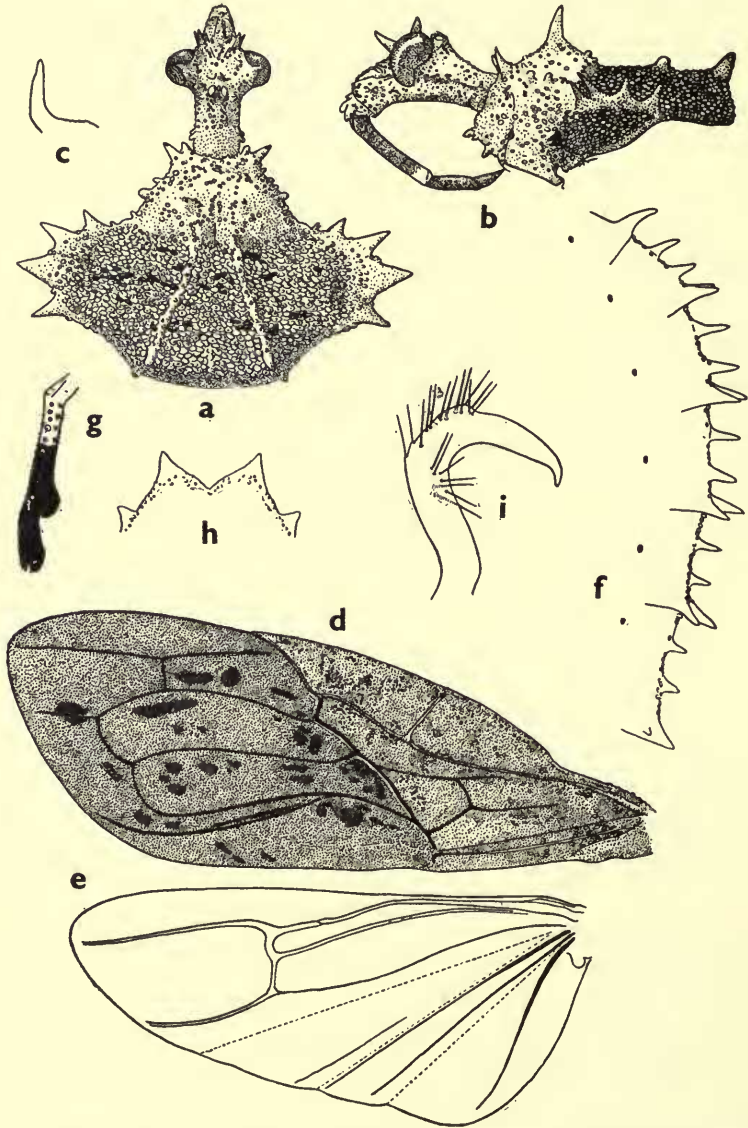


FIG. 5. *Centrocnemis truculenta* sp. n. A. Head and pronotum, (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. anterior tibia; H. apex of abdomen, ♂; I. harpago.

laterally near posterior margin; segments 3-7 with a similar spot and also an oblique fuscous spot laterally near anterior margin. Connexivum dorsally with faint blackish suffusion. Pleura and abdomen ventrally with strong piceous suffusion and confluent maculation. Prosternum testaceous; meso- and metasternum piceous. Tarsi piceous; anterior tibiae in a little more than half apically, black; tubercles and suffusion in black area whitish; median tibiae broadly black apically and with a blackish median annulation coalescing on outer surface of tibia with black apical part; posterior tibiae broadly black apically and with a very wide median blackish annulation; anterior femora with a little more than half basally piceous; coxae and trochanters piceous.

STRUCTURE. Postocular with a moderately long erect spine laterally adjacent to eyes. Stridulatory furrow fusiform in outline and with well-developed striae. Spiracular osteoles on pro- and mesopleura narrow, elongate. Abdomen dorsally with tubercles of varied sizes irregularly spaced on posterior margin of segments; sub-dorsally with an erect tubercle near each end of gland ostioles, those on segment 3 longer and more widely spaced. Total length 18 mm.

SPECIMEN EXAMINED. One 5th instar neanide. Java (no precise locality).

Centrocnemis polita sp. n.

(Text-fig. 6)

COLOUR. Testaceous. Basal segment of antennae black with white tubercles; segment 2 of antennae blackish brown with pale testaceous tubercles. Lower margin of juga, postocular laterally and gular region of head suffused with brown. Basal segment of rostrum suffused with black; segment 2 black in basal two-thirds; remainder and tubercles whitish; segments 3 and 4 piceous; segment 3 somewhat paler apically. Posterior lobe of pronotum with blackish areas mainly between discal tubercles. Apex of lateral spines on collar and of discal spines on anterior pronotal lobe narrowly brown. Disc of scutellum black; tubercles and laterally dark testaceous; base and apex of spine obscurely testaceous. Corium dark olivaceous; tubercles pale testaceous; venation black, except apex of R and R + M, yellowish; membrane blackish with suffused fuscous spots; metathoracic wings violaceous. Connexivum dorsally with piceous suffusion. Tarsi black; anterior tibiae black in apical two-thirds; tubercles whitish; anterior femora suffused with brown basally; concave lower surface black; median tibiae broadly black apically and with a wide median blackish suffusion; median and posterior femora suffused with piceous basally; posterior tibiae broadly black apically and with a very wide median brownish suffusion. Coxae and trochanters piceous, the anterior and median pair with testaceous suffusion apically.

STRUCTURE. Principal tubercle on basal rostral segment broadly conical, rounded apically. Projections on posterior margin of posterior pronotal lobe short, conical. Connexival segments minutely granulose, the granules fewer in apical half; apical margin of segments with tubercles varying in number and size. Carinae enclosing flattened area of abdomen ventrally very obscurely granulose. Concave part of

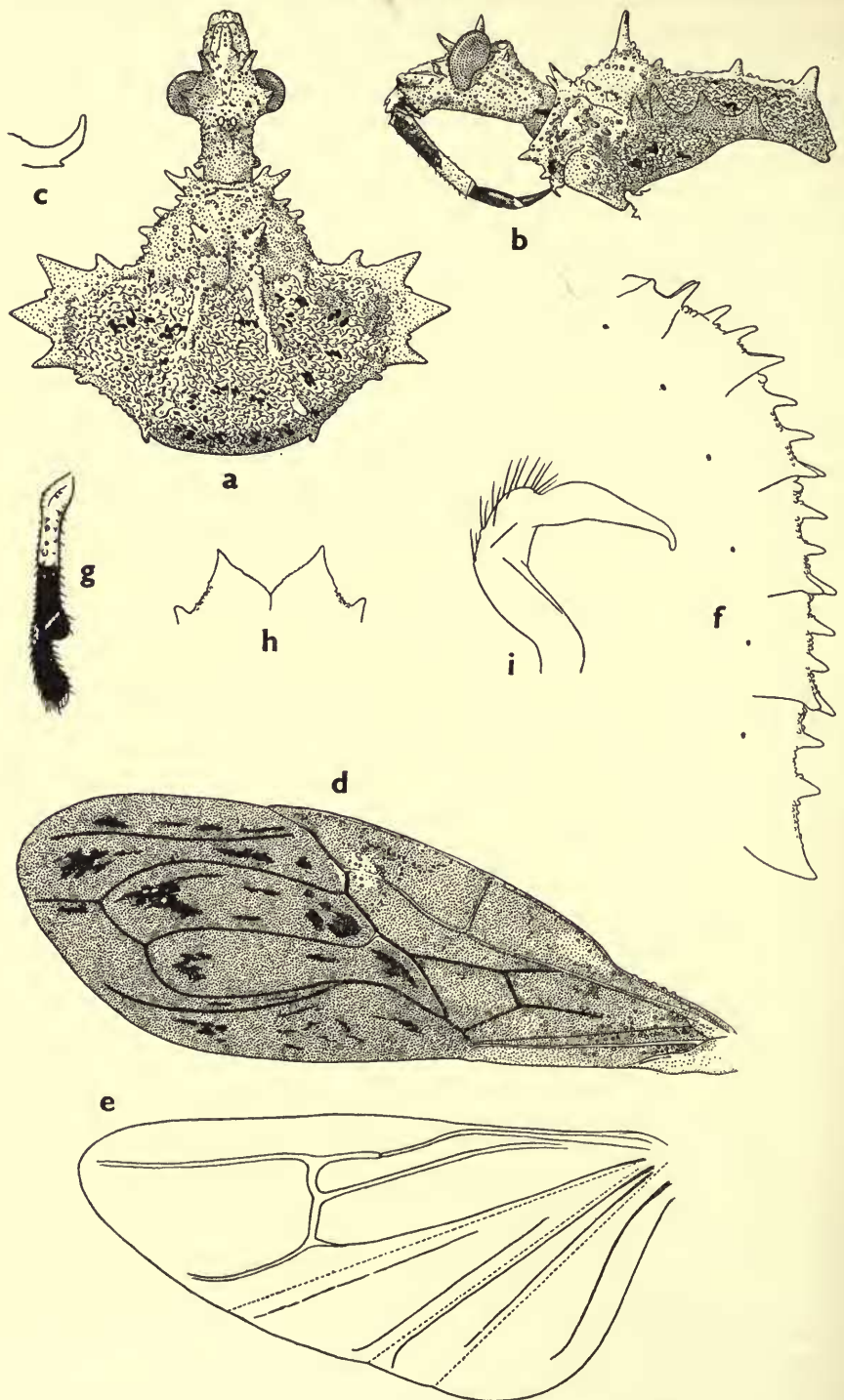


FIG. 6. *Centrocnemis polita* sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. anterior tibia; H. apex of abdomen, ♂; I. harpago.

lower surface of anterior femora with abundant denticles and with a small, median smooth area. Mesosternum with a few low, rounded tubercles.

| | |
|-----------------------------------|-----------|
| | ♂ |
| Total length | 26.00 mm. |
| Hemelytra | 17.00 mm. |
| Greatest pronotal width | 11.00 mm. |

SPECIMENS EXAMINED. One ♂ (holotype), C. Borneo, Long Nawang, 1925. (Macgillavry coll., leg. Mjöberg.)

Holotype in Zoologisch Museum. Amsterdam, The Netherlands.

Centrocnemis leprosa sp. n.

(Text-fig. 7)

COLOUR. Greenish testaceous. Basal segment of antennae olivaceous, apically black and with white tubercles; segment 2 blackish with white tubercles and apex narrowly testaceous. Tubercles on head and anterior pronotal lobe whitish; tubercles on posterior lobe testaceous with white apex. Basal segment of rostrum suffused with black; segment 2 black with apex narrowly whitish; tubercles whitish; segments 3 and 4 piceous; segment 3 suffused with brown apically. Gular region black; lower margin of juga and a lateral stripe on postocular dark olivaceous. Propleura blackish with a smooth olivaceous area near upper margin; meso- and metapleura black with a pale testaceous suffusion on acetabula; meso- and metasternum black with median carina and suffusion posteriorly testaceous. Scutellum black with testaceous suffusion at base of apical spine; tubercles pale testaceous. Corium dark olivaceous; apex of clavus suffused with black; tubercles, a median irregular transverse suffusion, apex of R reddish yellow; membrane blackish with fuscous spots; metathoracic wings violaceous. Tarsi black; anterior tibiae black in apical two-thirds and with a whitish spot and tubercles sub-apically; anterior femora pale olivaceous with two pale testaceous stripes on upper surface; base suffused with dark brown; concave area on lower surface black; median femora pale olivaceous with piceous suffusion basally and a pale testaceous sub-oblique stripe on inner surface; posterior femora with basal two-thirds piceous; remainder pale olivaceous; tubercles and spines pale testaceous; coxae and trochanters piceous; tubercles on coxae pale testaceous.

STRUCTURE. Principal tubercles on basal rostral segment conical, narrowly rounded apically. Projections on posterior margin of posterior pronotal lobe very short, rounded, tuberculate. Connexival segments minutely granulose dorsally; apical margin of segments with a few erect tubercles of varied lengths. Carinae enclosing flattened area of abdomen ventrally distinct, moderately granulose. Concave part of lower surface of anterior femora with abundant denticles and with a parallel-sided median, smooth area. Metasternum with a few tubercles.

| | | |
|-----------------------------------|-----------|-----------|
| | ♂ | ♀ |
| Total length | 22.00 mm. | 25.00 mm. |
| Hemelytra | 14.00 mm. | 17.00 mm. |
| Greatest pronotal width | 8.50 mm. | 11.00 mm. |

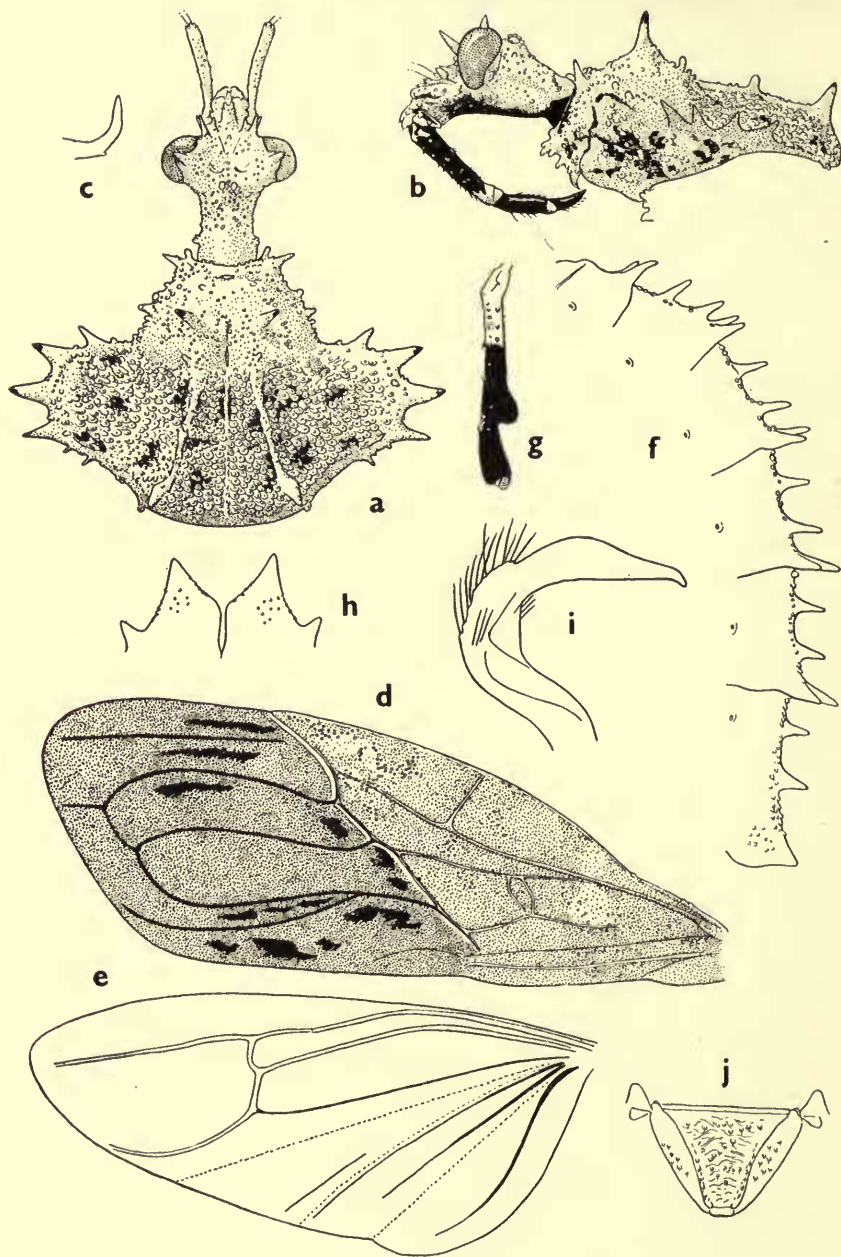


FIG. 7. *Centrocnemis leprosa* sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. anterior tibia; H. apex of abdomen, ♂; I. harpago; J. apex of abdomen, ♀.

SPECIMENS EXAMINED. One ♂ (holotype), Java, Gunong Slamet, Batoerraden, 18.i.1929; 2 ♂♂, 1 ♀ (paratypes), same locality, 21.x.1928, 18.i.1929; 1 ♀ (paratype), 18.i.1929; 3 5th instar neanides. F. C. Drescher (coll. D. Macgillavry).

Holotype ♂, 1 ♂ and 1 ♀ paratype, 2 5th instar neanides in Zoologisch Museum, Amsterdam, The Netherlands; 1 ♂ paratype and 1 5th instar neanide in British Museum (Nat. Hist.), London.

5th instar neanide. (Text-fig. 2, A)

COLOUR. Testaceous. Basal segment of antennae blackish with a median suffusion and apex of tubercles greenish white; segments 2-4 blackish with whitish tubercles; apex of segment 2 moderately broadly white. Tubercles on head and anterior pronotal lobe white. Apex of lateral spines on collar, of discal tubercles and lateral spines of anterior pronotal lobe narrowly brown. Both lobes of pronotum, rudimentary hemelytra and wings with black and brown suffusion. Gula piceous, shining basally; antocular and postocular dorsally laterally with greenish black suffusion. Basal segment of rostrum suffused with black; segment 2 black with apex and tubercles whitish; segments 3 and 4 black; segment 3 with light brown suffusion apically. Pleura, meso- and metasternum strongly suffused with black, the former with testaceous spots and tubercles, the latter with the median carina testaceous. Abdomen dorsally with strong black confluent maculation, large pale and deep yellow spots on connexivum and very small, pale yellow spots and fuscous spots sub-laterally. Area surrounding gland ostioles deep yellow; abdomen ventrally with strong black suffusion and confluent spots. Tarsi piceous; anterior tibiae with apical two-thirds black and with a pale suffused testaceous spot on outer surface sub-apically; median tibiae black apically and with a median blackish suffusion; posterior tibiae broadly black apically and with a very wide median annulation blackish; anterior femora with concave lower surface piceous; upper and lateral surfaces suffused with pale olivaceous; median and posterior femora strongly suffused with piceous in basal half; coxae and trochanters piceous.

STRUCTURE. Stridulatory furrow elongate elliptical in outline; transverse striae well-developed. Rudimentary scutellum with a short, erect spine. Abdomen dorsally with an erect tubercle on each side of gland ostioles. Pro- and mesopleural spiracles with a narrow elongate ostiole. Rudimentary *fossula spongiosa* on anterior and median tibiae composed of a very dense group of short, slender setae. Total length 20 mm.

SPECIMENS EXAMINED. Three 5th instar neanides (same data as for adults).

Centrocnemis malayana sp. n.

(Text-fig. 8)

COLOUR. Testaceous except scutellum, black. Basal segment of antennae blackish with tubercles and a narrow longitudinal stripe on upper surface testaceous; segment 2 blackish with tubercles and a very narrow sub-apical annulation pale testaceous. Posterior lobe of pronotum with faint black suffusion. Propleural epimeron, meso- and metapleura with piceous suffusion. Meso- and metasternum piceous; median

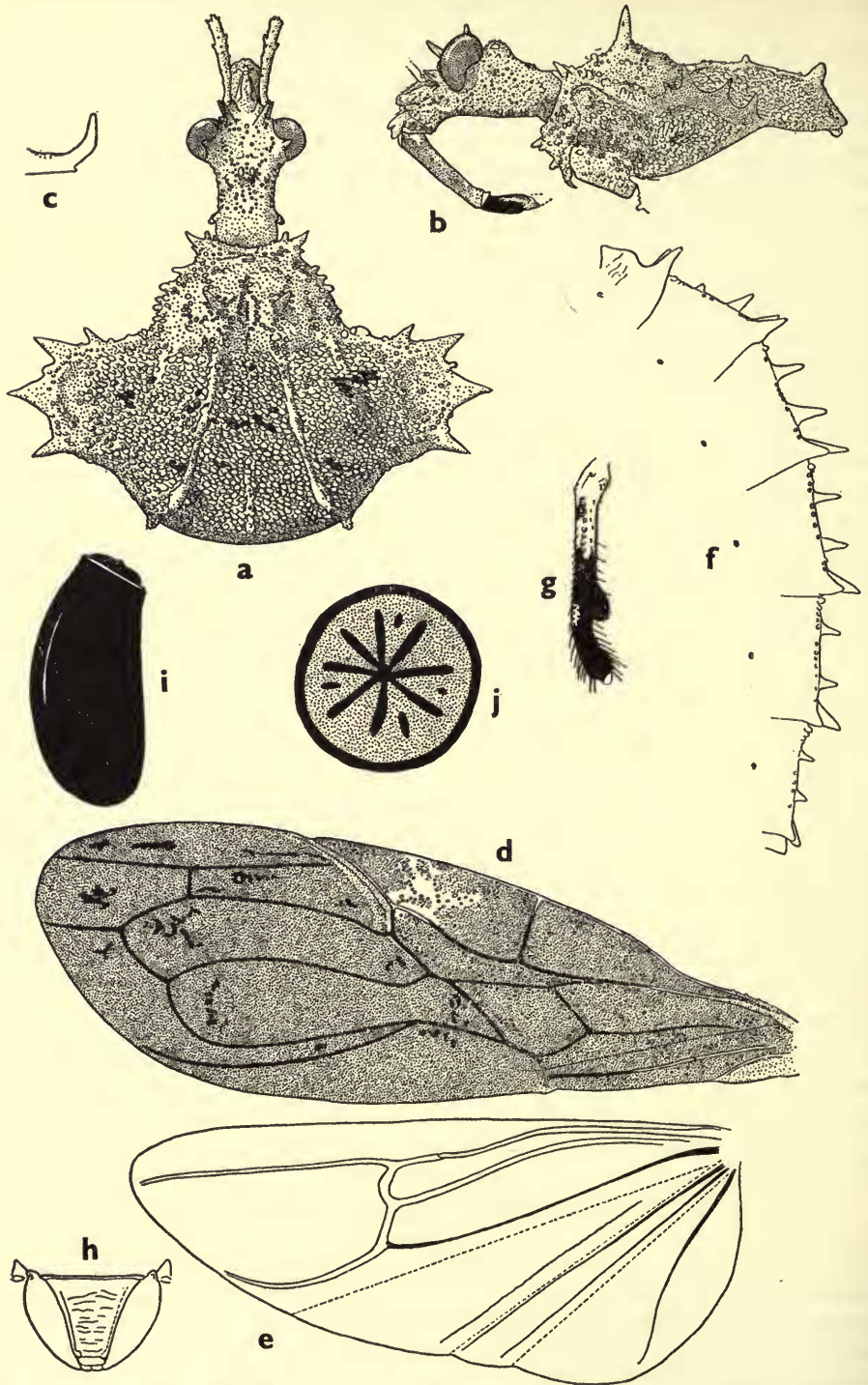


FIG. 8. *Centrocnemis malayana* sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. anterior tibia; H. apex of abdomen, ♀; I. ovum; J. operculum.

carina testaceous. Scutellum with basal lateral spines, tubercles and an annulation at base of apical spine pale testaceous. Corium dark olivaceous with a suffusion medially and sub-apically and tubercles whitish; apical half of clavus suffused with black; membrane greyish with paler grey and fuscous confluent spots; metathoracic wings violaceous; vein R and base of Cu reddish. Tarsi black; anterior tibiae with a little less than two-thirds apically black with a well-defined pale testaceous spot on outer surface sub-apically; anterior femora with concave part of lower surface piceous; upper surface with a longitudinal paler testaceous stripe; median and posterior femora strongly suffused with piceous; median tibiae piceous apically and with a median brownish suffusion on outer surface; posterior tibiae broadly black apically and remainder, except base, broadly suffused with black.

STRUCTURE. Basal segment of antennae with many setigerous tubercles; segment 2 with a few tubercles, mainly in basal half. Principal tubercles on basal rostral segment conical, somewhat broadly rounded apically. Projections on posterior margin of posterior pronotal lobe very short, rounded, tuberculate. Connexival segments moderately granulose; apical margin of segments with tubercles varying in number and size. Carinae enclosing flattened area of abdomen ventrally moderately well-defined, obscurely granulose. Concave part of lower surface of anterior femora with abundant denticles and a well-defined smooth median area.

| | |
|-----------------------------------|-----------|
| | ♀ |
| Total length | 27.50 mm. |
| Hemelytra | 19.00 mm. |
| Greatest pronotal width | 12.00 mm. |

SPECIMENS EXAMINED. One ♀ (holotype), Malacca (no precise locality: probably not the colony of Malacca is intended but Malaya); one ♀ (paratype) Malacca (no precise locality; also probably Malaya), 1862, Castelnau.

Holotype in Naturhistoriska Riksmuseum, Stockholm, Sweden; paratype in Hope Department, University of Oxford, England.

Ovum (Text-fig. 8, i). Cylindrical, somewhat curved at upper end; chorion glabrous, very obscurely reticulate; chorion piceous; differentiated portion whitish; opercular ridges piceous. 3.50 mm.

***Centrocnemis suprema* sp. n.**

(Text-fig. 9)

COLOUR. Testaceous. Tubercles on head and thorax mostly white. Basal segment of antennae strongly suffused with black and with whitish tubercles; segment 2 blackish, narrowly whitish apically. Basal segment of rostrum suffused with black; segment 2 blackish with an elongate spot basally laterally; apex narrowly and tubercles whitish; segments 3 and 4 piceous; segment 3 suffused with brown apically. Gula piceous; lower margin of juga suffused with black; postocular laterally and with an oblique stripe sub-laterally blackish. Posterior lobe of pronotum with black areas; lateral spines on collar, discal tubercles on anterior pronotal lobe narrowly brown apically. Scutellum piceous; tubercles, basal lateral spines

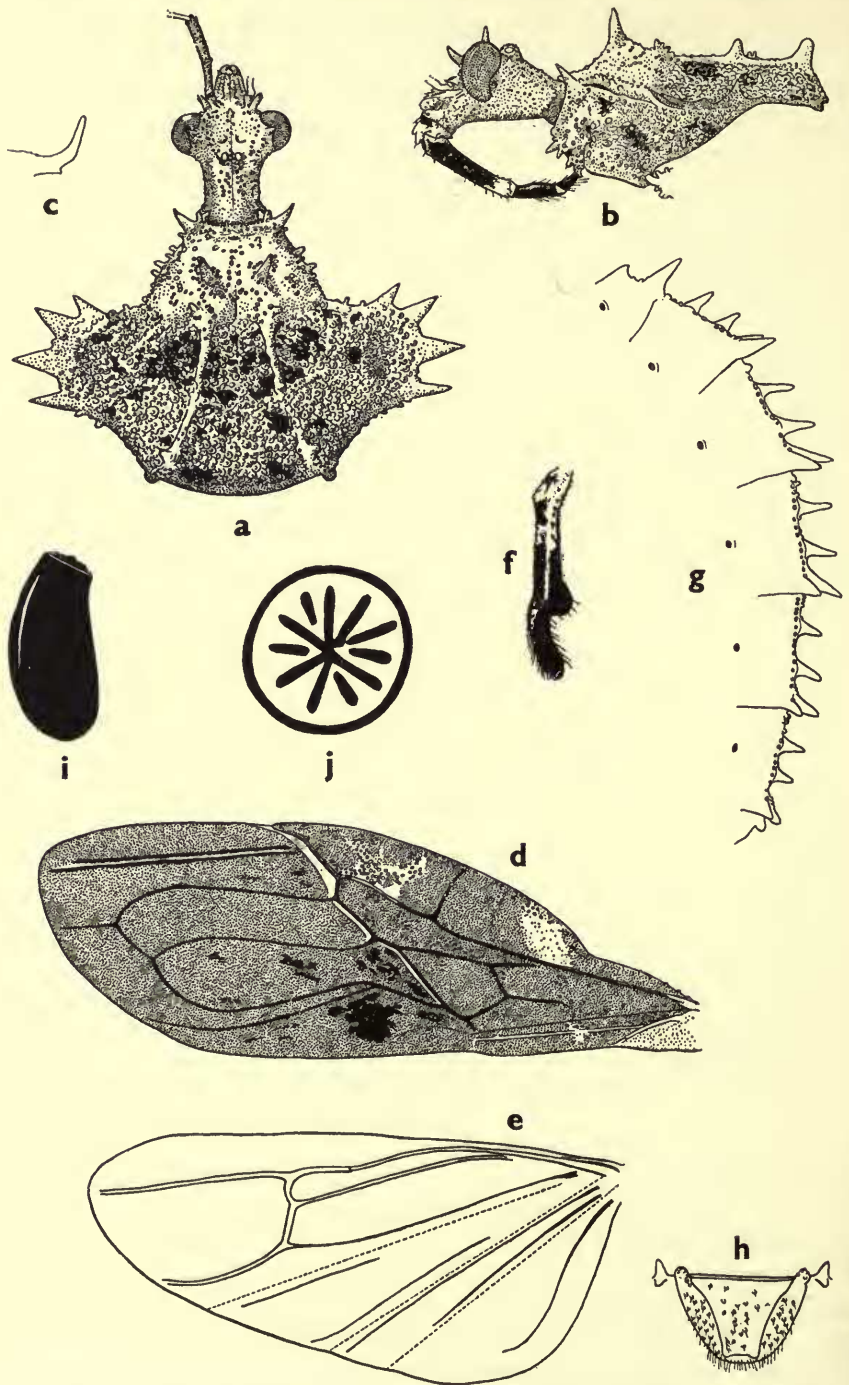


FIG. 9. *Centrocnemis suprema*, sp. n. A. Head and pronotum (dorsal view); B. head, pronotum, and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. anterior tibia; G. connexivum (ventral view); H. apex of abdomen, ♀; I. ovum; J. operculum.

and an annulation at base of apical spine testaceous. Propleura suffused with piceous; meso- and metapleura piceous with testaceous suffusion on acetabula. Corium dark olivaceous; medially and apically with a pale pinkish testaceous suffusion; apex of vein R pinkish testaceous; membrane dark grey with fuscous spots; metathoracic wings faintly violaceous; vein R light red. Connexival segments pale testaceous with dark brown suffusion; abdomen dorsally ferruginous; ventrally strongly suffused with piceous and with a wide, median, longitudinal piceous stripe. Tarsi black; anterior tibiae with apical two-thirds black and with a pale testaceous spot on outer surface sub-apically and on inner surface of spur; tubercles pale testaceous; median tibiae broadly black apically; remainder suffused with black; posterior tibiae black, except basally and a sub-apical annulation, testaceous; basal testaceous part with a lateral black stripe; anterior femora with lower, and lower lateral, surface black; external surface with a longitudinal blackish suffusion.

STRUCTURE. Principal tubercles on basal rostral segment conical, narrowly rounded apically. Projections on posterior margin of posterior pronotal lobe very short, broadly rounded. Connexival segments with abundant granules, the largest near the base; apical margin of segments with sub-erect apically rounded tubercles of varied sizes. Carinae enclosing flattened area of abdomen ventrally moderately distinct and granulose. Concave part of lower surface of anterior femora with moderately abundant denticles and an irregular smooth median area.

| | |
|-----------------------------------|-----------|
| | ♀ |
| Total length | 26.50 mm. |
| Hemelytra | 16.50 mm. |
| Greatest pronotal width | 11.00 mm. |

SPECIMENS EXAMINED. One ♀ (holotype), Java, Koelangkangoen 17.viii.1927, F. C. Drescher (coll. D. Macgillavry).

Holotype in Zoologisch Museum, Amsterdam, The Netherlands.

OVUM (Text-fig. 9, i). Cylindrical, somewhat curved at opercular end. Chorion sub-glabrous. Chorion and operculum piceous; differentiated portion of chorion whitish. 3.50 mm.

Centrocnemis compta sp. n.

(Text-fig. 10)

COLOUR. Dark testaceous. Basal segment of antennae blackish with whitish tubercles; segment 2 brown with apex and tubercles testaceous. Basal segment of rostrum suffused with black; segment 2 black with a triangular spot on inner and lateral surfaces basally, tubercles and apex narrowly whitish; segments 3 and 4 piceous; segment 3 suffused with brown apically. Gula dark brown; extreme base shining piceous; postocular basally laterally piceous; tylus and postocular laterally with dark brown suffusion. Apex of discal tubercles on anterior pronotal lobe very narrowly brown. Posterior lobe of pronotum and propleura with blackish suffusion; meso- and metapleura piceous with very pale testaceous suffusion and tubercles. Scutellum piceous with tubercles and an annulation at base of spine testaceous.

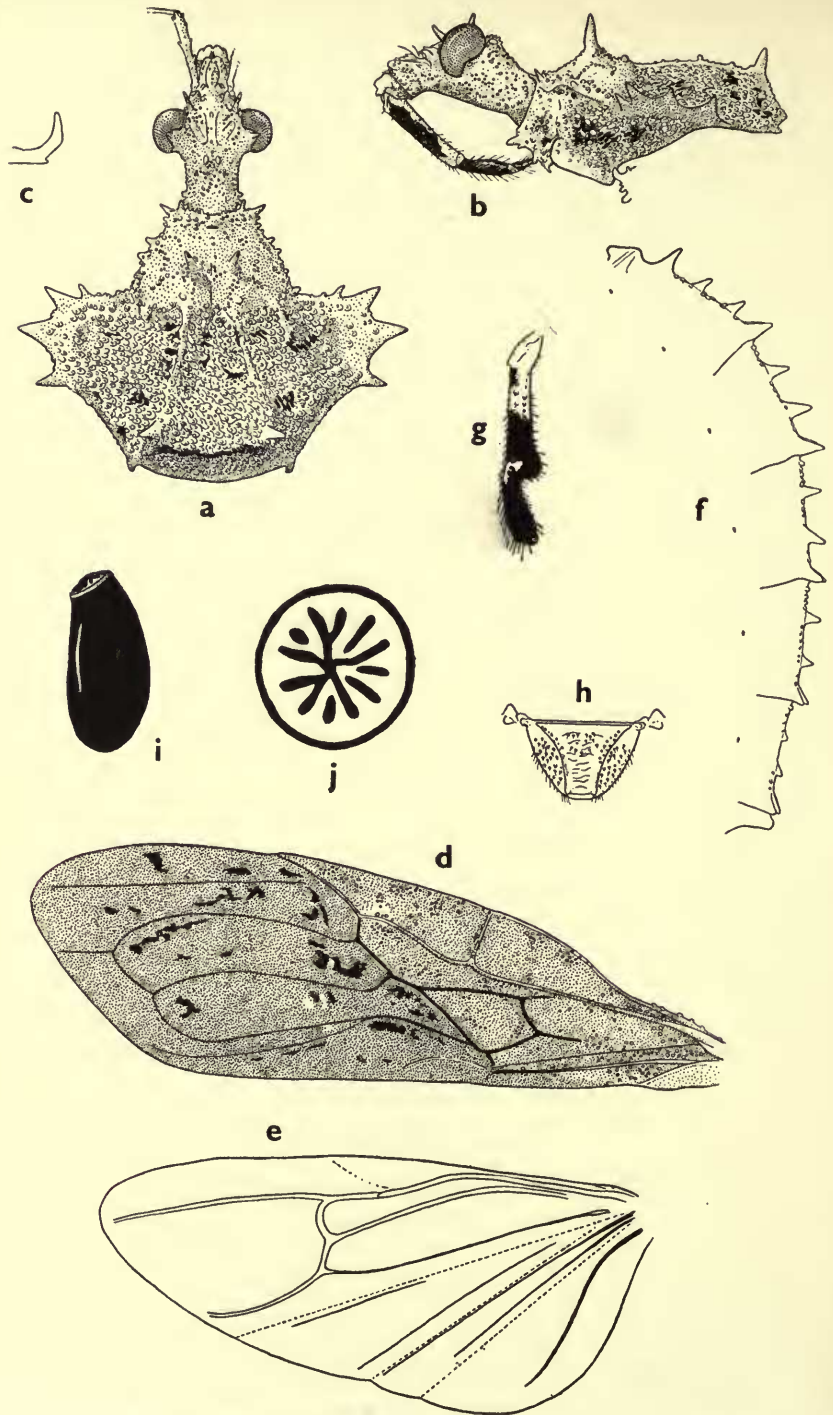


FIG. 10. *Centrocnemis compta* sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. anterior tibia; H. apex of abdomen, ♀; I. ovum; J. operculum.

Corium olivaceous with tubercles and an apical suffusion whitish; apex of vein R greenish white; membrane grey with fuscous spots; metathoracic wings violaceous. Connexival segments with piceous suffusion and a very pale suffused yellowish spot basally; dorsal surface of abdomen ferruginous; abdomen ventro-laterally and segment 7 entirely suffused with piceous; segments 3 and 4 with faint ferruginous suffusion midventrally. Tarsi black; anterior tibiae with apical two-thirds black and with a pale testaceous spot sub-apically on inner and outer surfaces; outer surface basally with faint blackish suffusion; anterior femora with longitudinal brownish suffusion laterally; concave part of lower surface piceous; lower surface sub-apically with black suffusion; median tibiae black apically and with a median brownish suffusion on outer surface; posterior tibiae blackish, except basally and a somewhat obscure sub-apical annulation, testaceous; median and posterior femora strongly suffused with piceous, except apically; coxae and trochanters piceous with pale testaceous suffusion and tubercles.

STRUCTURE. Tubercles on basal antennal segment moderately prominent; tubercle on upper surface apically short, sub-acute; segment 2 with a few obscure tubercles basally. Principal tubercles on basal rostral segment conical. Projections on posterior margin of posterior pronotal lobe very short, rounded. Connexival segments dorsally with abundant granules of varied sizes; apical margin of segments with a few short, curved tubercles. Carinae enclosing flattened area of abdomen ventrally obsolescent. Concave part of lower surface of anterior femora with abundant denticles and a median parallel-sided smooth area.

| | |
|-----------------------------------|-----------|
| | ♀ |
| Total length | 26.50 mm. |
| Hemelytra | 17.00 mm. |
| Greatest pronotal width | 9.50 mm. |

SPECIMEN EXAMINED. One ♀ (holotype), Malaya, Doerian, Riouw Archipelago, ix. 1923. Dammerman.

Holotype in Rijksmuseum van Natuurlijke Historie Leiden, The Netherlands.

OVUM (Text-fig. 10, i). Cylindrical, curved at opercular end. Chorion sub-glabrous. Chorion and operculum piceous; differentiated portion of chorion whitish. 3.50 mm.

Centrocnemis sarawakensis sp. n.

(Text-fig. 11)

COLOUR. Dark testaceous. Basal segment of antennae suffused with black apically; segment 2 dark brown. Basal segment of rostrum suffused with black; segment 2 black with tubercles and apex pale testaceous; segments 3 and 4 piceous. Tubercles on head, thorax and legs pale testaceous. Scutellar spine medially piceous. Pleura suffused with piceous; meso- and metasternum piceous; median carina testaceous. Corium brown with tubercles and an irregular spot apically pale testaceous; membrane dark greyish with fuscous spots; metathoracic wings dark infumate with violaceous suffusion; veins Sc and R reddish. Abdomen ventro-laterally suffused with piceous. Tarsi black; anterior tibiae with a little more than half apically

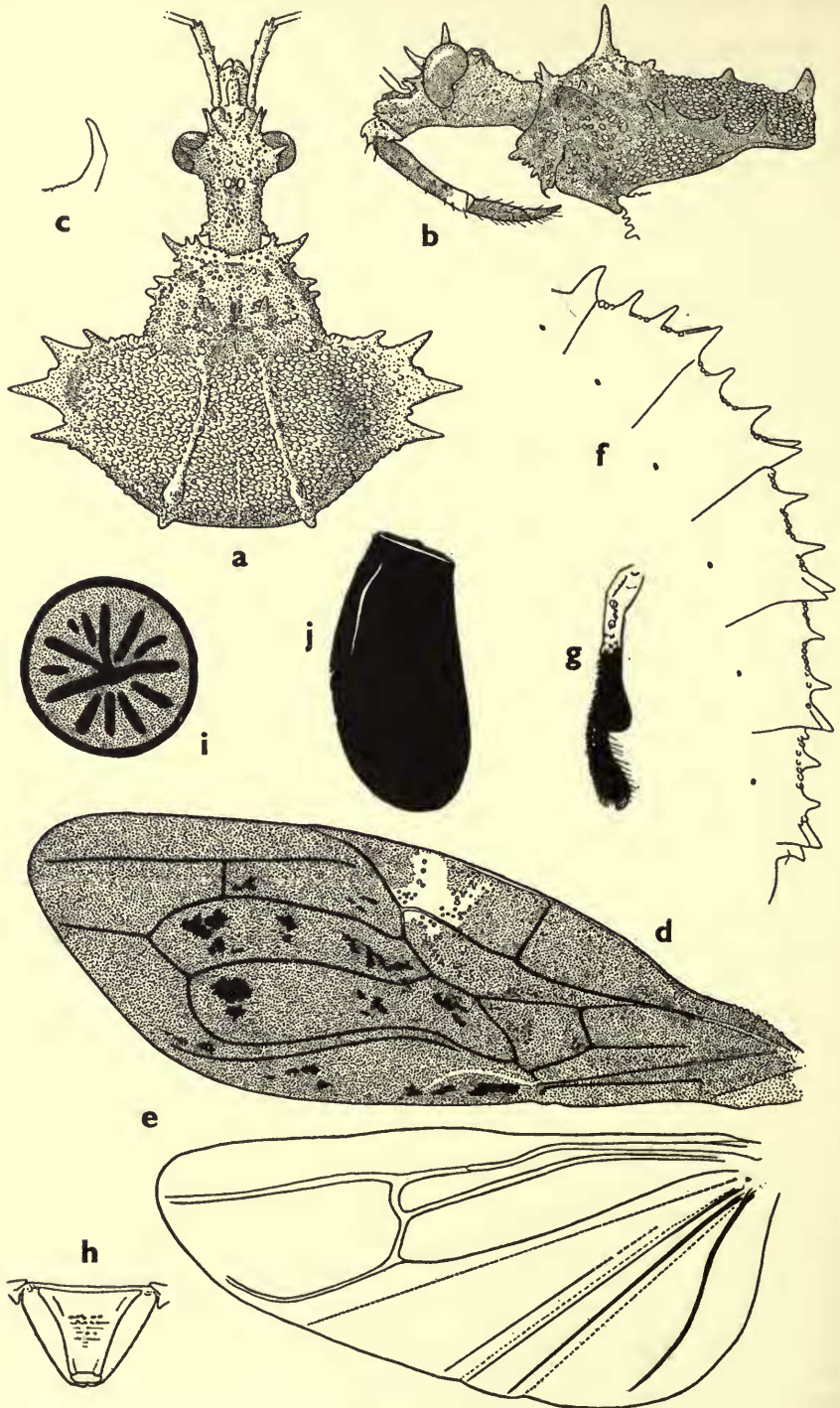


FIG. 11. *Centrocnemis sarawakensis* sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. anterior tibia; H. apex of abdomen, ♀; I. operculum; J. ovum.

black with a pale testaceous spot sub-apically and pale testaceous tubercles; lower surface of anterior femora, greater part of median and posterior femora suffused with piceous; median tibiae broadly black apically and with remainder, except extreme base, brownish; posterior tibiae black, except basally and a sub-apical annulation testaceous; coxae and trochanters piceous; tubercles on coxae pale testaceous.

STRUCTURE. Basal segment of antennae with cylindrical tubercle on upper surface apically and shorter tubercles projecting somewhat, mostly on middle of segment; segment 2 with a few obscure tubercles in basal half. Principal tubercles on basal rostral segment conical narrowly rounded apically. Projections on posterior margin of posterior pronotal lobe short, rounded. Connexival segments strongly granulose dorsally; apical margin of segments thickened with a few short, outwardly directed tubercles. Carinae enclosing flattened area of abdomen ventrally obsolescent and feebly granulose. Concave part of lower surface of anterior femora with moderately abundant denticles and an ill-defined smooth area medially.

| | | | | | | | | | |
|-------------------------|---|---|---|---|---|---|---|---|-----------|
| Total length | . | . | . | . | . | . | . | ♀ | 27.50 mm. |
| Hemelytra | . | . | . | . | . | . | . | | 17.50 mm. |
| Greatest pronotal width | . | . | . | . | . | . | . | | 11.00 mm. |

SPECIMEN EXAMINED. One ♀ (holotype), Sarawak (no precise locality). Saunders, B.M., 63—13.

Holotype in British Museum (Nat. Hist.), London.

OVUM (Text-fig. 11, i). Cylindrical, curved on one side and almost straight on other; chorion sub-glabrous; chorion and operculum piceous; differentiated portion of chorion whitish. 3.70 mm.

Centrocnemis cretacea sp. n.

(Text-fig. 12)

COLOUR. Testaceous. Antennae piceous; basal segment with whitish tubercles and a faint median testaceous annulation; segment 2 brownish with whitish tubercles and apex narrowly testaceous. Basal segment of rostrum blackish with pale testaceous or whitish tubercles; segment 2 piceous, narrowly whitish apically and with whitish tubercles; segments 3 and 4 piceous; segment 3 suffused with brown apically. Gula and postocular basally laterally piceous; lower margin of jugs suffused with black. Apex of tubercles adjacent to eyes, of lateral spines on collar, of discal tubercles on pronotum and of spines on lateral expansions of posterior pronotal lobe narrowly brown. Propleura suffused with black; meso- and meta-pleura black with margins of acetabular incision narrowly testaceous. Meso- and metasternum dark testaceous. Scutellum black with basal lateral spines and an annulation at base of apical spine testaceous. Corium olivaceous with black suffusion at apex of clavus and between claval suture and Cu, and irregular pinkish white suffusion medially and apically; apex of R pinkish yellow; metathoracic wings violaceous. Dorsal surface of abdomen light red; abdomen ventrally strongly

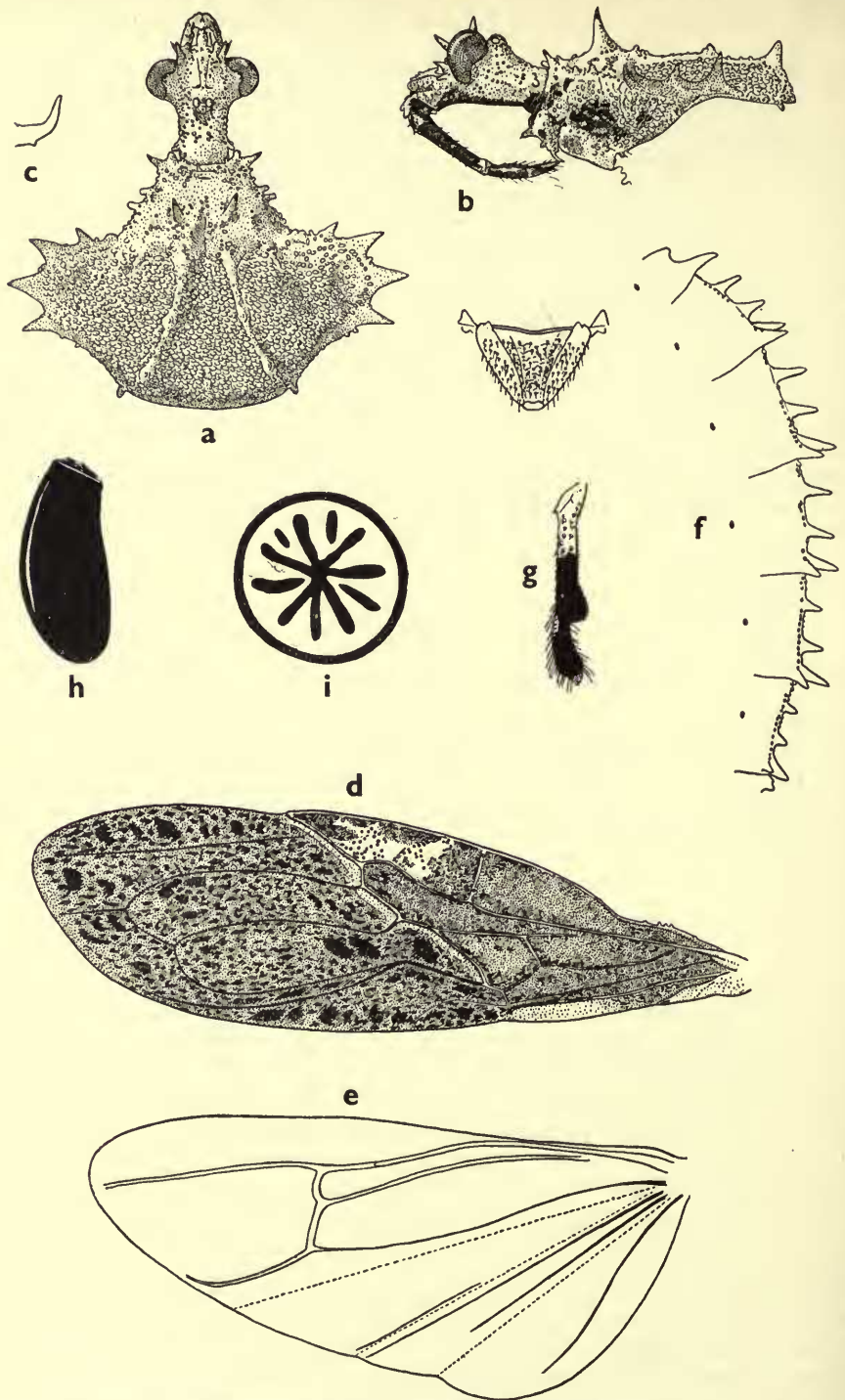


FIG. 12. *Centrocnemis cretacea* sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. anterior tibia; H. ovum; I. operculum.

suffused with piceous. Tarsi black; anterior tibiae black in apical two-thirds and with whitish spot and tubercles sub-apically; median tibiae black, except basally and a narrow area on inner surface testaceous; posterior tibiae broadly black apically; remainder, except basally, brownish with pale testaceous tubercles; coxae and trochanters piceous; anterior coxae narrowly testaceous apically; anterior and median femora with piceous suffusion basally; posterior femora piceous except apex testaceous.

STRUCTURE. Basal segment of antennae with very short tubercle on upper surface apically and with very short tubercles mostly medially; segment 2 with a few obscure tubercles in basal half. Principal tubercles on basal rostral segment conical, narrowly rounded apically. Projections on posterior margin of posterior pronotal lobe short, narrowly conical. Connexival segments strongly and minutely granulose dorsally; apical margin of segments with a few tubercles. Carinae enclosing flattened area of abdomen ventrally obsolescent. Concave part of lower surface of anterior femora with abundant denticles and with a median, parallel-sided smooth area.

| | |
|-----------------------------------|-----------|
| | ♀ |
| Total length | 25.00 mm. |
| Hemelytra | 17.50 mm. |
| Greatest pronotal width | 9.00 mm. |

SPECIMENS EXAMINED. One ♀ (holotype), one ♀ (paratype), Java, Mount Salak, 800 m., 2.viii.1928. L. G. E. Kalshoven.

Holotype in Zoologisch Museum, Amsterdam, The Netherlands, paratype in British Museum (Nat. Hist.), London.

OVUM (Text-fig. 12, H). Cylindrical somewhat strongly convex on one side and feebly convex on other at opercular end; chorion glabrous, obscurely rugulose, obscurely reticulate basally; chorion and operculum piceous; differentiated portion of chorion whitish. 4 mm.

Centrocnemis neglecta sp. n.

(Text-fig. 13)

COLOUR. Testaceous. Basal and segment 2 of antennae blackish with whitish tubercles; basal segment also with testaceous suffusion medially. Basal segment of rostrum suffused with black; segment 2 piceous, except inner surface basally and narrowly apically whitish; segments 3 and 4 piceous; segment 3 suffused with brown apically. Gula dark brown; extreme base of postocular laterally and ventrally shining piceous; lower part of juga with black suffusion; postocular laterally with brown suffusion. Posterior lobe of pronotum with greyish areas; lateral spines on collar and discal tubercles on anterior pronotal lobe brown apically. Propleura with faint blackish suffusion; meso- and metapleura piceous with obscure testaceous suffusion. Scutellum black; basal lateral spines, tubercles, an annulation at base of apical spine, apex of spine, testaceous. Meso- and metasternum suffused with piceous; median carina testaceous. Corium olivaceous with blackish suffusion and with a

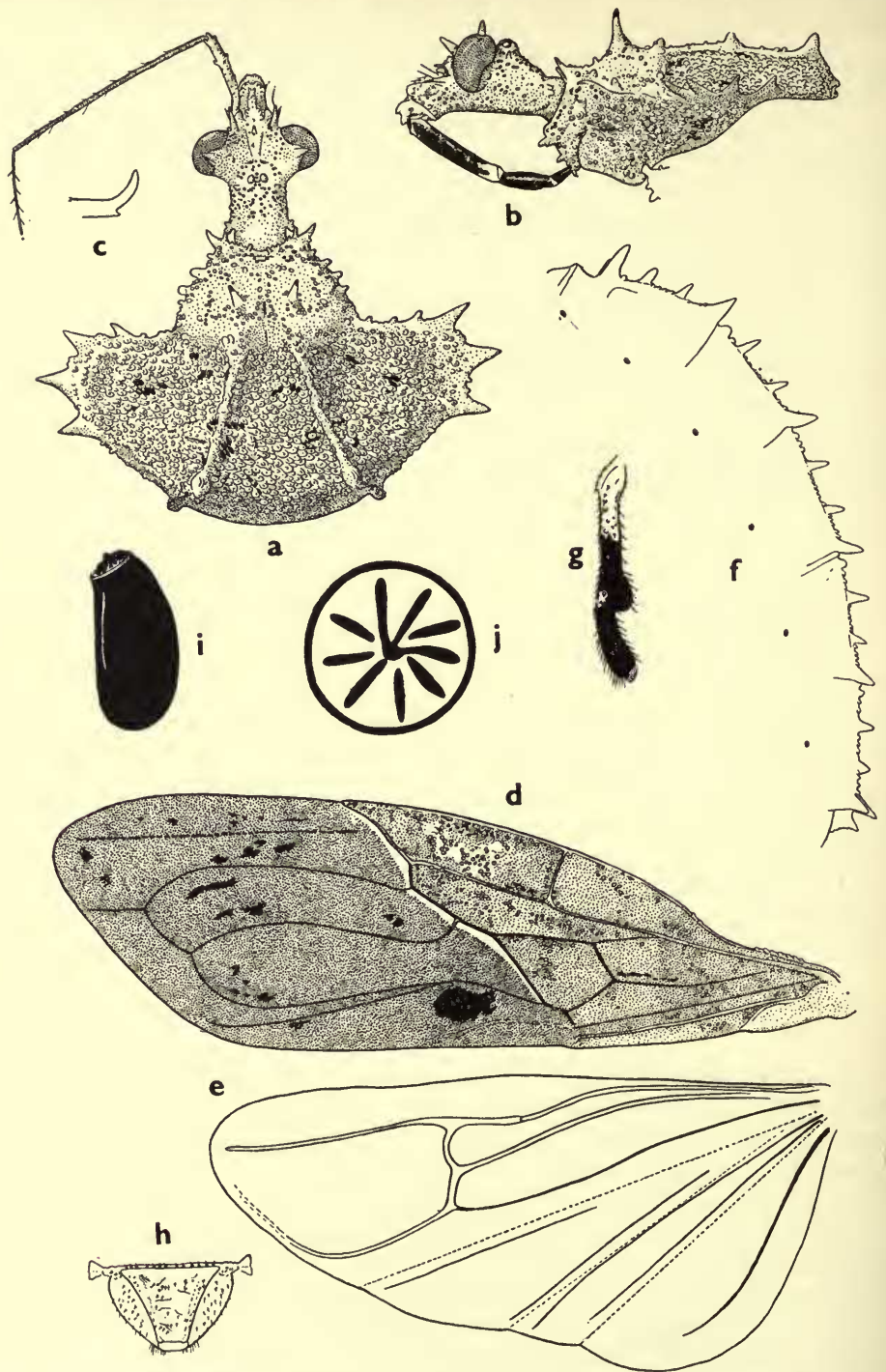


FIG. 13. *Centrocnemis neglecta* sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. anterior tibia; H. apex of abdomen, ♀; I. ovum; J. operculum.

suffused spot apically and apex of vein R greenish white; membrane dark greyish with fuscous and pale grey spots; metathoracic wings violaceous. Connexivum pale testaceous with piceous suffusion; abdomen ventrally dark yellowish with piceous suffusion. Tarsi black; anterior tibiae with anterior two-thirds black and pale testaceous tubercles on outer surface sub-apically; median tibiae with apex broadly black and a wide blackish suffusion on outer surface medially; posterior tibiae black, except basally; anterior femora with concave part of lower surface piceous; median femora strongly suffused with piceous, except on inner surface; posterior femora suffused with piceous in a little more than half basally; coxae and trochanters piceous, the anterior pair of the former with testaceous suffusion.

STRUCTURE. Longer tubercles on basal antennal segment moderately prominent. Principal tubercles on basal rostral segment conical narrowly rounded apically. Projections on posterior margin of posterior pronotal lobe short, broadly rounded, tuberculate. Connexival segments dorsally with abundant granules; apical margin of segments with a few outwardly directed, short, rounded tubercles of varied sizes. Carinae enclosing flattened area of abdomen ventrally obsolescent. Concave part of lower surface of anterior femora with abundant denticles and a distinct, parallel-sided median smooth area.

| | |
|-----------------------------------|-----------|
| | ♀ |
| Total length | 28.50 mm. |
| Hemelytra | 19.00 mm. |
| Greatest pronotal width | 12.00 mm. |

SPECIMEN EXAMINED. One ♀ (holotype), Borneo, Kina Balu (coll. Breddin).

Holotype in Deutsches Entomologisches Institut, Berlin, Germany.

OVUM (Text-fig. 13, i). Cylindrical, considerably narrower at opercular end. Chorion sub-glabrous; piceous; operculum dark testaceous with carinae piceous; differentiated portion of chorion whitish. 3.60 mm.

Neocentrocnemis gen. nov.

Basal segment of antennae shorter than anteocular; segment 2 much longer than basal segment. Anteocular considerably shorter than postocular. Segment 2 of rostrum somewhat thick, sub-equal in length to segments 3 and 4 together. Connexival segments with a variable number of spines at external apical angle. Anterior tibiae simple; anterior and median tibiae with a *fossula spongiosa*. Scutellum with an erect spine apically. Metathoracic wings infumate.

Type Species *Centrocnemis signoreti* Stål

Key to *Neocentrocnemis* species (males)

1. External apical angle of connexival segments 2 and 3 with 2 spines; segments 4-6 with 1 spine 2.
- . External apical angle of connexival segments 2-6 with 2 spines 7.

Neocentrocnemis signoreti (Stål)

(Text-fig. 14)

1863, *Ann. Soc. ent. Fr.* 48.

COLOUR. Pale testaceous. Segment 2 of antennae brown, very narrowly testaceous basally. Confluent spots on anterior and posterior pronotal lobe, apex of discal tubercles, apex of lateral expansions, confluent spots on propleura, black. Abdomen ventrally mainly black; intermediate spines on segment 2 of connexivum black. Corium very pale testaceous with strong black suffusion; tubercles very pale testaceous; membrane brown with whitish confluent spots and fuscous suffusion basally; metathoracic wings infumate; venation darker; vein M mostly yellow suffused with light red apically. Tarsi black with testaceous suffusion on segment 2 apically and segment 3 basally; tibiae with apex and a wide median annulation black; anterior femora with faint brownish suffusion basally; median femora black with base, apex and a median suffusion testaceous.

STRUCTURE. Principal tubercles on basal rostral segment trapeziform with apical angles rounded. Projections on posterior margin of posterior pronotal lobe obsolete, rounded. Carinae enclosing flattened area of abdomen ventrally obsolescent; (in male distinct and granulose on segment 3, less distinct on other segments).

| | ♂ | ♀ |
|-------------------------------|-----------------|-----------------|
| Total length . . . | 24.50-27.00 mm. | 25.00-28.00 mm. |
| Hemelytra . . . | 16.50-17.00 mm. | 16.00-17.50 mm. |
| Greatest pronotal width . . . | 9.50-11.00 mm. | 10.00-12.00 mm. |

SPECIMENS EXAMINED. One ♂ (paratype), Sarawak; 1 ♂, S. Sumatra, S.W. Lampongs, Mt. Tanggamoos Giesting, 600 m., 12.1934, Lieftinck/Toxopeus; 1 ♂, W. Sumatra, Padang Pandjang, H. Rolle; 1 ♂, Malacca, 1862, Castelnau; ♂, Malacca 1965, Deyrolle; 1 ♂, Sarawak A. R. Wallace. (B.M. 56-44); 2 ♂♂, Sarawak, Mt. Poi, E. Mjöberg, (Mt. Poi Exped), (B.M., 1947-269); 1 ♂, Sarawak, Saunders, (B.M., 65-13); 1 ♂, Borneo (B.M., 1953-629; pres. by Perth Museum); 1 ♂, Sumatra (Distant coll., B. M., 1911-383); 1 ♂, Malaya, nr. Karak, Chintamani, Pahang, (at light), 15.viii.1935, (pres. by Selangor Museum); 2 ♂♂, Sarawak, Kuching, 21.i.1900, R. Shelford; 1 ♂, Sarawak, Mt. Kalulong 10.xi.1932, B.M., Hobby and A. W. Moore, Oxford Univ. Exped. (B.M., 1933-254); 2 ♂♂, Sarawak, Mt. Matang, 20.i.1914, G. E. Bryant; 1 ♀ (holotype), Sarawak; 1 ♀ Malaya, Perak, Doherty, (Distant coll; B.M., 1911-383); 2 ♀♀, Sarawak, Mt. Poi, E. Mjöberg; 3 ♀♀, Sarawak foot of Mt. Dulit, junction of Rivers Tinjar and Lejok, 10.ix.1932, B.M. Hobby and A. W. Moore, Oxford Univ. Exped. (B.M., 1933-254); 2 ♀♀, Sarawak, Mt. Matang, 10.xi.1914, G. E. Bryant; 1 ♀, Sarawak, Mt. Kalulong, 10.xi.1932, B.M., Hobby and A. W. Moore, Oxford Univ. Exped. (B.M., 1933-254); 1 ♀, Sarawak, Kuching, R. Shelford; 1 ♀, Sarawak, Kuching 23.vi.1899, (Distant coll., B.M., 1911-383); 1 ♀, Sarawak Long Lebang, 28.x.1932, B. M. Hobby and A. W. Moore, Oxford Univ. Exped. (B.M., 1933-254); 1 ♀, Malacca, 1 ♀, Malacca, 1862, Castelnau; 1 ♀, S.O. Borneo (coll Breddin); 1 ♀, Sumatra, Loeboek Sikaping, 450 m., 1923-27, L. Hundeshagen.

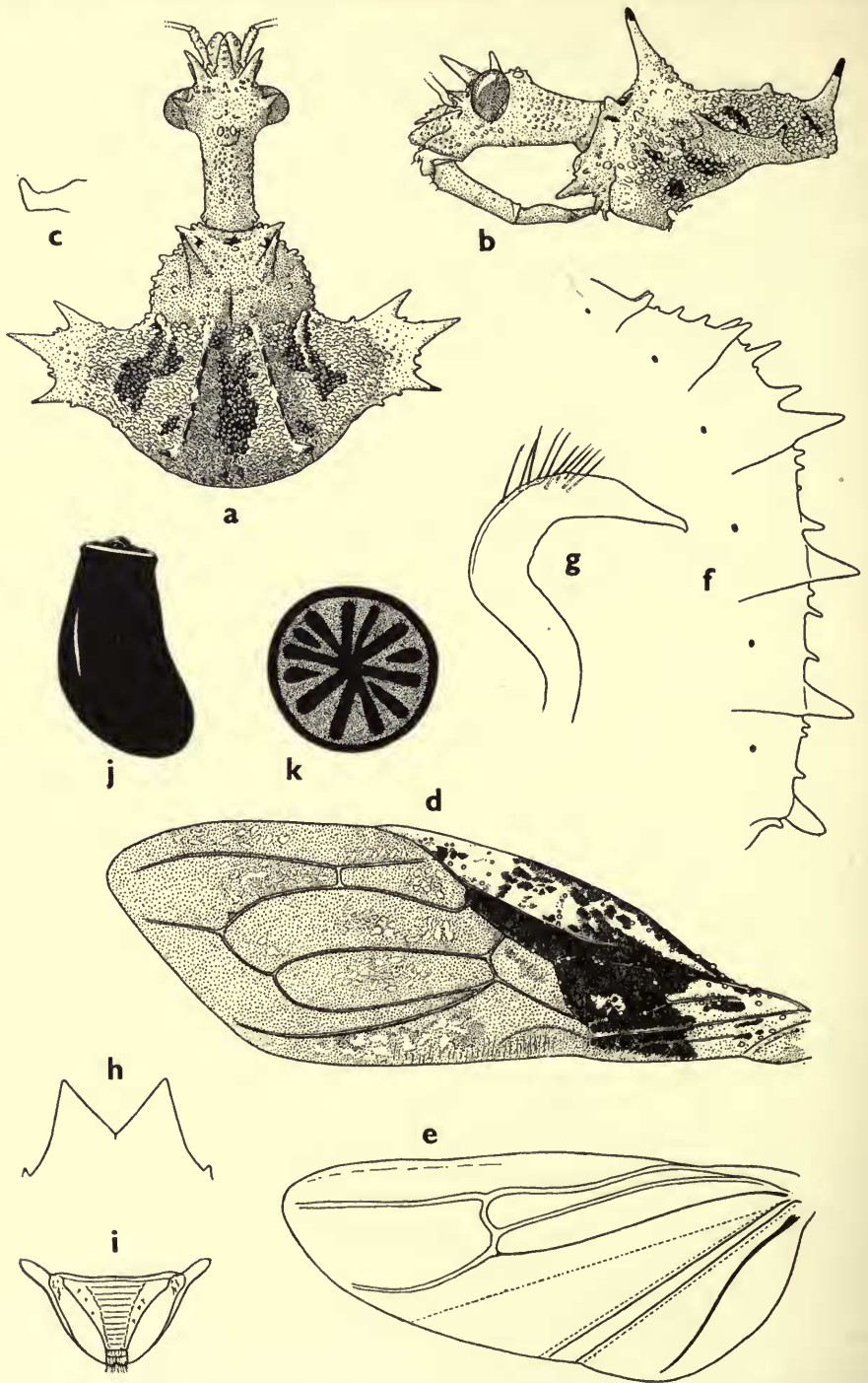


FIG. 14. *Neocentrocnemis signoreti* (Stål) gen. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. harpago; H. apex of abdomen, ♂; I. *idem*, ♀; J. ovum; K. operculum.

Holotype in British Museum (Nat. Hist.) London ; paratype in Naturhistoriska Riksmuseet Stockholm, Sweden.

OVUM. (Text-fig. 14, J). Sub-ampulliform. Chorion sub-glabrous, minutely reticulate ; chorion and operculum piceous ; differentiated portion of chorion whitish 2.70 mm.

2nd instar neanide (Text-fig. 2, C)

COLOUR. Testaceous. Anterior margin of pronotum, apex of pronotal spines broadly, transverse suffusion and confluent spots on segments 1-3 and 5-6 of abdomen dorsally black. Tarsi testaceous with apical segment suffused with black ; anterior and median tibiae with apex and a median annulation black ; posterior tibiae, except base, narrowly black ; anterior femora piceous on lower surface basally ; median and posterior femora piceous, except apically ; coxae piceous with testaceous suffusion ; trochanters testaceous ; Sterna piceous. Connexival spines apically black.

STRUCTURE. All spines very long and with short lateral spines and tubercles, most of which setigerous. Striae in stridulatory furrow well-developed. Abdomen sub-dorsally with a pair of erect tubercles near gland ostioles, the tubercles on segment 3 longer and more widely spaced. Total length 7.50 mm.

3rd instar neanide (Text-fig. 2, D)

Closely resembles the 2nd instar, but differs in having the spines considerably shorter, more robust and without or with much reduced lateral setigerous tubercles. Sub-dorsal abdominal tubercles on segments 4 and 5 relatively shorter and thicker. Striae in stridulatory furrow well-developed. Total length 10 mm.

4th instar neanide (Text-fig. 2, E)

Somewhat paler in coloration than the 3rd instar and with less black suffusion and confluent maculation on abdomen dorsally. In this instar the spines are relatively more robust, those on the pronotum directed forwards and not erect. Striae in stridulatory furrow well-developed. Tylus with long tubercles. Total length 14.50 mm.

5th instar neanide (Text-fig. 2, F)

Differs from the 4th instar mainly in the greater extent of development of the hemelytra and wings, the margins of which have moderately robust spines. The tylus has much shorter tubercles and the spine at the external apical angle of the connexival segments is acutely triangular, but much wider basally. The *fossula spongiosa* are represented by a dense group of short setae which cover a larger area on the median than on the anterior tibiae. Total length 19-21 mm.

SPECIMENS EXAMINED. Two 2nd instar, 2 3rd instar, 4 4th instar and 2 5th instar neanides N. Borneo (Sarawak), Kuching R. Shelford ; 1 5th instar, Sarawak, foot, of Mt. Dulit junction of the Rivers Tinjar and Lejok 10.ix.1932, B. M., Hobby and A. W. Moore, Oxford Univ. Exped.; 1 5th instar, Sarawak (no precise locality), Saunders (B.M., 65-13) ; 1 5th instar Borneo (no precise locality) (pres. by Perth Museum ; B.M., 1953-629).

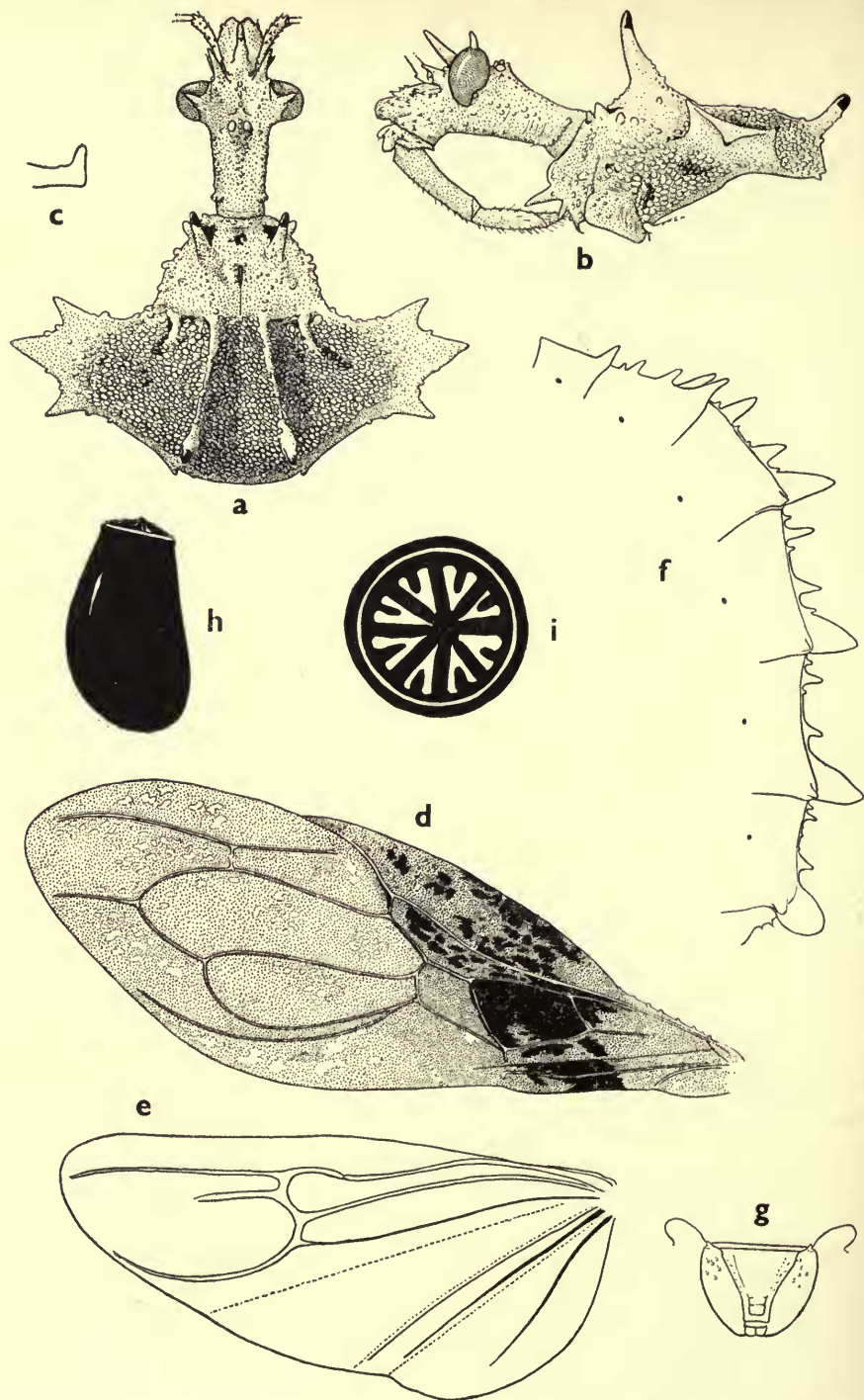


FIG. 15. *Neocentrocnemis kinabaluensis* gen. n., subsp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♀; H. ovum; I. operculum.

Neocentrocnemis kinabaluensis sub-sp.n.

(Text-fig. 15)

Differs from *Neocentrocnemis signoreti* (Stål) in larger size, and in having much more robust and backwardly directed sub-dorsal tubercles and less pronounced sub-dorsal carinae on posterior pronotal lobe, rounded and not acute basal lateral spines on scutellum, somewhat obscurely tuberculate pronotal lobes, less strongly tuberculate and spinose femora and very wide spine at external angle of connexival segments.

| | |
|-----------------------------------|----------------|
| Total length | ♀ 27.50 mm. |
| Hemelytra | 17.00 mm. |
| Greatest pronotal width | 11.00 mm. |

1 ♀ (holotype), Borneo, Kina Balu, Whitehead. (Distant coll., B.M., 1911-383).

Holotype in British Museum (Nat.Hist.) London.

OVUM, (Text-fig. 15, H). Cylindrical, narrower at opercular end; rounded on one side, straight on other. Chorion sub-glabrous. Chorion and carinae on operculum piceous; differentiated portion of chorion whitish. 2.70 mm.

Neocentrocnemis formosana (Matsumura)

(Text-fig. 16)

1913, *Thous. Ins. Japan, Addit.* 1, 161.

COLOUR. Dark testaceous. Head, pronotum and scutellum with blackish suffusion; base of gula piceous. Segment 2 of rostrum with a black spot submedially; segment 3 strongly suffused with piceous. Pleura, meso- and metasternum strongly suffused with piceous. Segments 2 and 3 of abdomen ventrally almost entirely piceous; segments 4-6 with a triangular spot mid-ventrally; apical margin and suffusion sub-laterally piceous; segment 7 with a median spot basally piceous and remainder almost entirely piceous. Apical segment of tarsi black in apical half; anterior and median tibiae with a median and apical black annulation; posterior tibiae apically and remainder with suffusion, black. Corium with very fine black maculation; veins whitish; membrane with black suffusion and spots; meta-thoracic wings faintly infumate. In the male the dark areas of the corium are more intense, also the spots on the membrane.

STRUCTURE. Principal tubercles on basal rostral segment rounded, truncate. Anterior lobe of pronotum sparsely tuberculate, the tubercles grouped more or less in rows; sub-dorsal carinae on posterior lobe very distinct, tuberculate. Projections on posterior margin of posterior pronotal lobe short, narrowly rounded. Carinae enclosing flattened area of abdomen ventrally feeble on segment 3, obsolescent on other segments.

| | | | | |
|------------------------------------|---|-----------|---|-----------|
| Total length | ♂ | 19.00 mm. | ♀ | 20.50 mm. |
| Hemelytra | | 12.00 mm. | | 12.00 mm. |
| Greatest pronotal length | | 7.00 mm. | | 7.00 mm. |

SPECIMENS EXAMINED. One ♀ (holotype), Formosa, Arikan, 1909, Matsumura; 1 ♂, Kuraru, (Takao-shû), viii. 1932, T. Tsida; 1 ♂, 2 ♀♀, Hoozan; 3 ♂♂, 2 ♀♀, Kosempo; 1 ♂, 1 ♀, Fuhosho; 1 ♀ Polisha; 1 ♂, Sokutsu, H. Sauter, 1909-1911. Holotype in Hokkaido University, Sapporo, Japan.

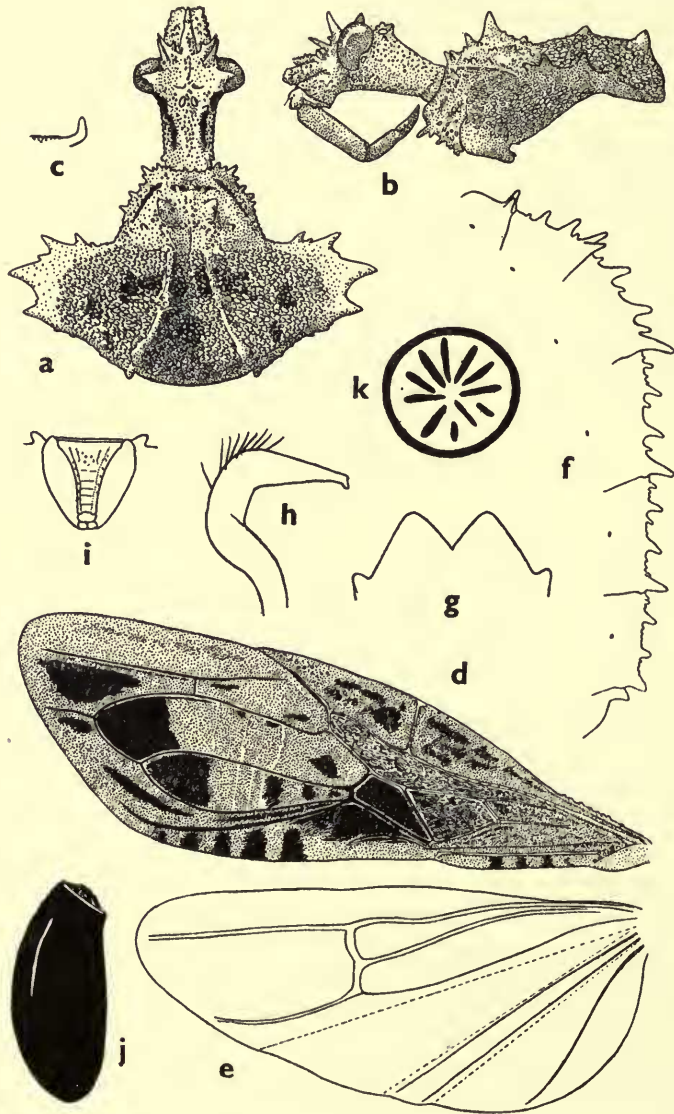


FIG. 16. *Neocentrocnemis formosana* (Matsumura). A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercle (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♂; H. harpago; I. apex of abdomen, ♀; J. ovum; K. operculum.

OVUM (Text-fig. 16, J). Cylindrical, curved somewhat at opercular end. Chorion glabrous, obscurely reticulate. Chorion and operculum piceous; differentiated portion of chorion whitish. 2.50 mm.

Neocentrocnemis fuscipennis sp. n.

(Text-fig. 17)

COLOUR. Testaceous. Head with a transverse spot between eyes, two narrow longitudinal stripes laterally black. Segment 2 of rostrum with black suffusion; segments 3 and 4 with piceous suffusion. Pronotum with irregular confluent spots, pleura with suffusion, piceous; meso- and metasternum piceous with median carina testaceous. Connexivum with black suffusion; abdomen ventrally with large black areas. Corium brown; venation fuscous with whitish spots; membrane pale testaceous with fuscous suffusion and spots; metathoracic wings infumate with the median costal area hyaline; veins Sc and R pale yellow. Anterior and median tibiae with a suffused median annulation and apex black; posterior tibiae, except basally, suffused with piceous; coxae pale testaceous strongly suffused with piceous; trochanters pale testaceous; denticulate area on anterior coxae piceous; anterior femora with suffusion on outer surface, median femora with suffusion on upper surface, posterior femora, except base, and apex, black.

STRUCTURE. Basal antennal segment moderately strongly curved, spinose and with a long narrow spine on upper surface apically. Principal tubercles on basal rostral segment broadly rounded. Projections on posterior margin of posterior pronotal lobe short, conical. Connexival segments dorsally somewhat obscurely granulose; apical margin of segments without tubercles. Carinae enclosing flattened area of abdomen ventrally distinct, granulose. Principal veins of corium with obsolescent tubercles.

| | ♂ | ♀ |
|-----------------------------------|-----------|-----------|
| Total length | 20.50 mm. | 20.00 mm. |
| Hemelytra | 13.50 mm. | 14.00 mm. |
| Greatest pronotal width | 8.50 mm. | 10.00 mm. |

SPECIMENS EXAMINED. One ♂ (holotype), Indo-China, Luang Prabang, 6.xii.1917
1 ♀ (paratype), Laos, X. Khsuang, 14.iv.1919, R. V. de Salvaza.

Holotype in British Museum (Nat. Hist.) London; paratype in Rijksmuseum, van Natuurlijke Historie, Leiden, The Netherlands.

OVUM (Text-fig. 17, J). Cylindrical. Chorion and operculum piceous and glabrous; differentiated portion of chorion whitish. 2.60 mm.

Neocentrocnemis elliptica sp. n.

(Text-fig. 18)

COLOUR. Dark testaceous. Segment 2 of antennae with apex very pale testaceous and a sub-apical piceous annulation. Segments 2 and 3 of rostrum with a large piceous spot; segment 4 piceous. Tubercles on head, body and legs pale testaceous.

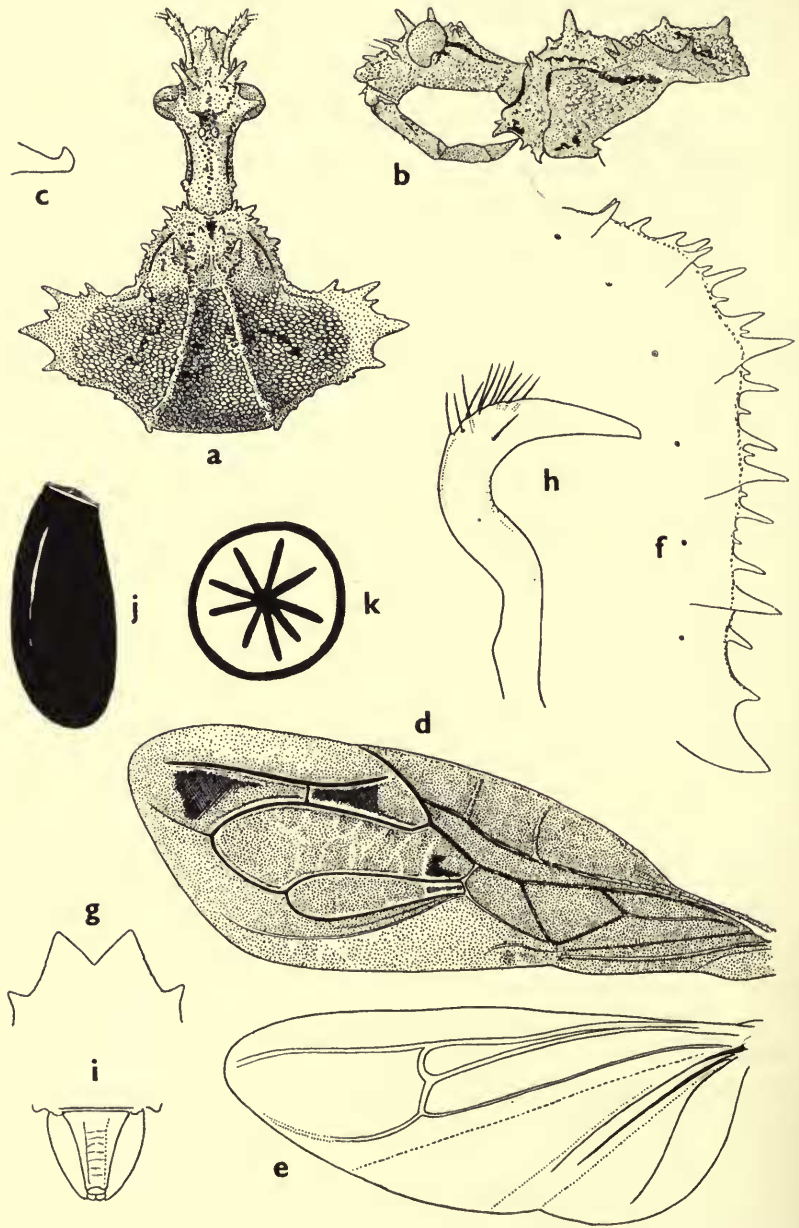


FIG. 17. *Neocentrocnemis fuscipennis* gen. n., sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♂; H. harpago; I. apex of abdomen, ♀; J. ovum; K. operculum.

Posterior lobe of pronotum with sparse, shining black tubercles. Pleura suffused with piceous; meso- and metasternum piceous. Corium with confluent fuscous spots; membrane very pale testaceous with strong, confluent spots and suffusion; metathoracic wings infumate. Connexivum very pale testaceous or yellowish with darker testaceous external margin and with piceous suffusion; abdomen mid-ventrally with triangular spots on segments 3-6 and remainder with suffusion,

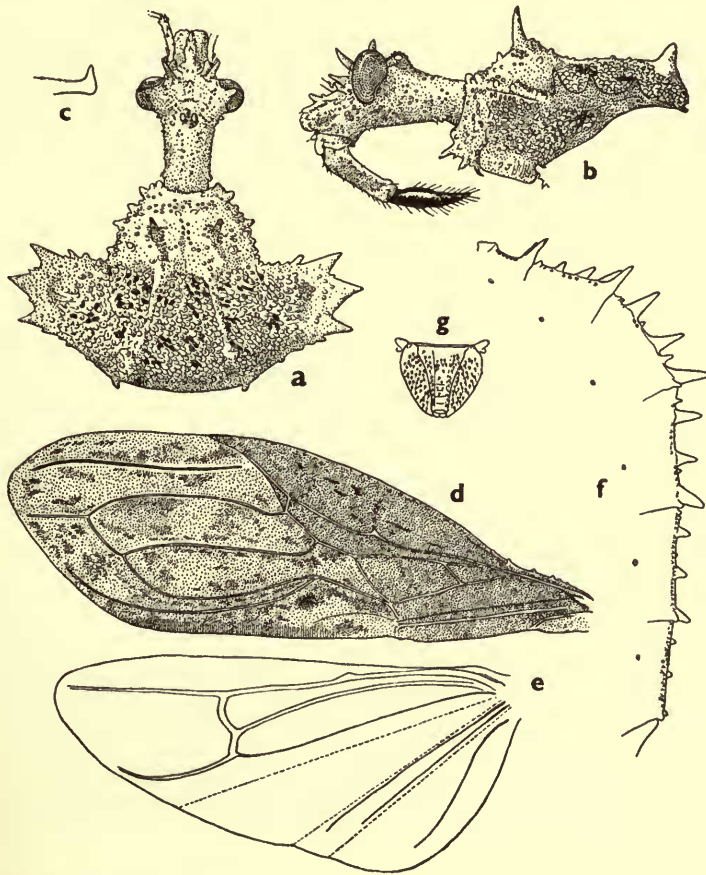


FIG. 18. *Neocentrocnemis elliptica* gen. n., sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♀.

piceous. Tarsi with segment I and apical half of segment 3 piceous; anterior tibiae with apex and a median annulation and faint suffusion on outer surface basally, black; median tibiae with apex, an interrupted median annulation and suffusion on outer surface basally black; posterior tibiae black apically and with dark brown suffusion; anterior femora with piceous suffusion on lower apical and inner and outer

surfaces; median and posterior femora strongly suffused with black; coxae suffused with piceous.

STRUCTURE. Principal tubercles on basal rostral segment conical, narrowly rounded apically. Projections on posterior margin of posterior pronotal lobe obsolete. Connexival segments dorsally with abundant somewhat prominent granules; apical margin of segments with a few tubercles, some of which cylindrical and directed outwards. Carinae enclosing flattened area of abdomen ventrally moderately prominent and granulose. Tubercles on corium mostly conical.

| | |
|-----------------------------------|-----------|
| | ♀ |
| Total length | 24.00 mm. |
| Hemelytra | 14.50 mm. |
| Greatest pronotal width | 9.00 mm. |

SPECIMEN EXAMINED. One ♀ (holotype), Peninsular Siam, Banchong, Trang, 21. iv. 1924, I. H. N. Evans.

Holotype in British Museum (Nat. Hist) London.

Neocentrocnemis macgillavryi sp. n.

(Text-fig. 19)

COLOUR. Testaceous. Basal segment of antennae with black suffusion on upper surface. Segment 2 of rostrum with an obscure piceous spot basally; segments 3 and 4 piceous; segment 3 light brown apically. Posterior lobe of pronotum with small black areas. Propleura with piceous spots and suffusion; meso- and meta-pleura shining piceous with tubercles and part of acetabula pale testaceous. Corium pale and greyish testaceous with fuscous suffusion; membrane very pale testaceous with strong fuscous suffusion and spots; cells almost entirely fuscous; metathoracic wings infumate. Abdomen dorsally with large irregular piceous spots; ventrally almost entirely piceous. Tarsi piceous with base of segment 3 and apex of segment 2 testaceous; anterior tibiae with apex and a somewhat indistinct median annulation, black; median tibiae with apex and a median annulation black; posterior tibiae apically dark brown; anterior femora with strong piceous suffusion basally and a piceous spot on lower lateral surface, sub-apically and two narrow, longitudinal stripes on upper surface, piceous; median femora with base and longitudinal stripes piceous; posterior femora piceous in basal half and with longitudinal stripes on upper surface apically; coxae piceous.

STRUCTURE. Principal tubercles on basal rostral segment quadrate with the angles rounded. Postocular with prominent tubercles between and near outer margin of ocelli. Lateral spines on postocular prominent, acute. Projections on posterior margin of posterior pronotal lobe triangular with apex rounded. Connexival segments dorsally obscurely granulose; apical margin of segments with moderately large tubercles of varied sizes. Carinae enclosing flattened area of abdomen ventrally obsolete.

| | |
|-----------------------------------|-----------|
| | ♀ |
| Total length | 25.00 mm. |
| Hemelytra | 16.00 mm. |
| Greatest pronotal width | 11.00 mm. |

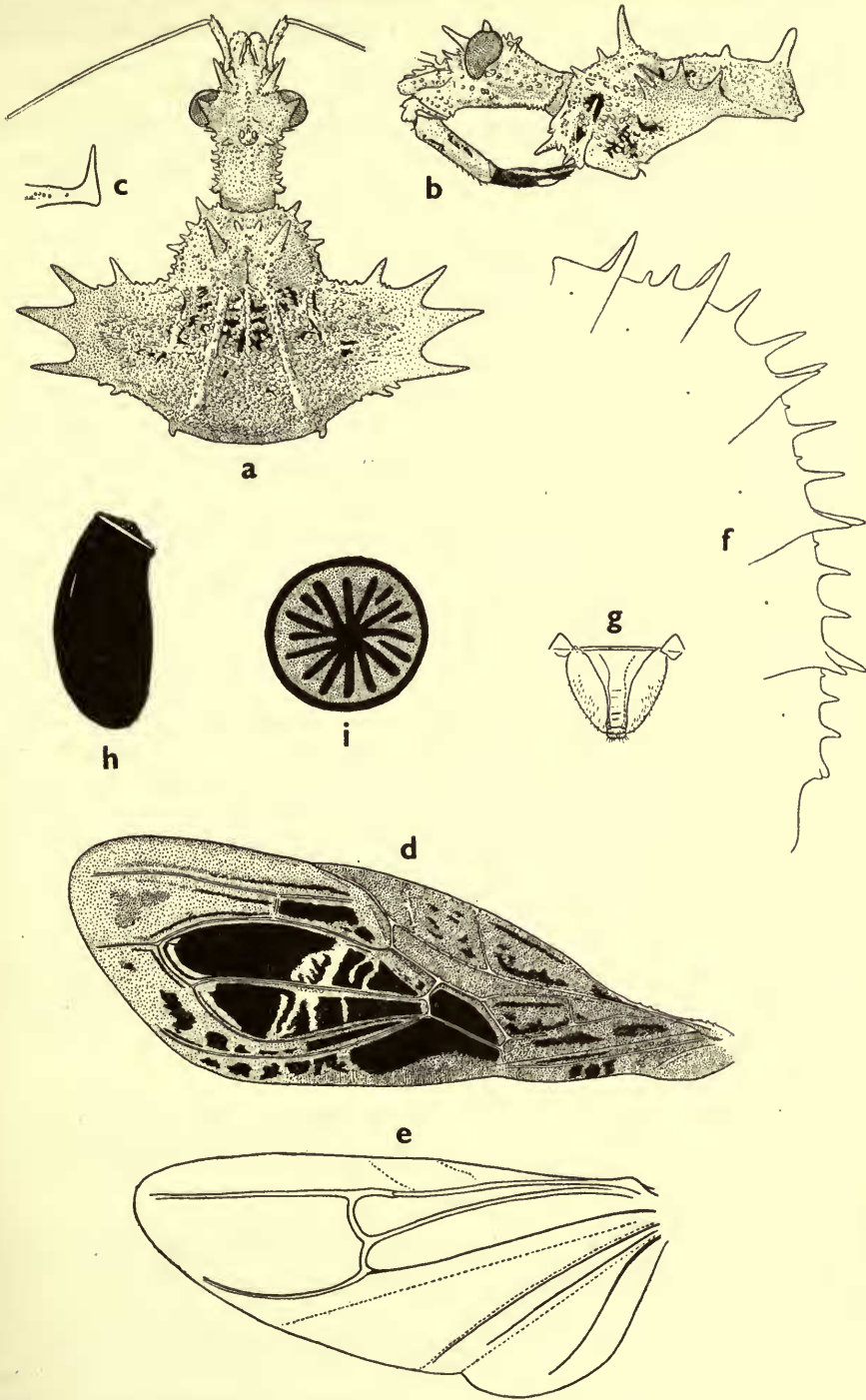


FIG. 19. *Neocentrocnemis macgillavryi* gen. n., sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercle (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♀; H. ovum; I. operculum.

SPECIMEN EXAMINED. One ♀ (holotype), Philippine Is., Siargao (coll. D. Macgillavry).

Holotype in Zoologisch Museum, Amsterdam, The Netherlands.

OVUM (Text-fig. 19, H). Sub-ampulliform; chorion obscurely granulose; chorion and operculum piceous; differentiated portion of chorion whitish. 2.70 mm.

Neocentrocnemis philippinensis (Distant)

(Text-fig. 20)

1902, *Ann. Mag. nat. Hist.* (10), 181.

COLOUR. Testaceous. Segments 3 and 4 of antennae brownish. Head with a narrow stripe from ocelli almost to base, a sub-lateral basal spot, a broad lateral stripe from eye almost to base, gula, black. Segments 1 and 2 of rostrum testaceous; segment 2 with piceous suffusion; segments 3 and 4 piceous; segment 3 testaceous apically. Posterior lobe of pronotum with black suffusion; pleura almost entirely black; meso- and metasternum black. Abdomen ventrally dark piceous, except greater part apically of segment 7; spots sub-dorsally and crescentic spots laterally very pale testaceous; connexivum dorsally with black suffusion, a crescentic spot on segments 3-6 and a sub-circular spot on segment 7, pale testaceous. Corium blackish; venation pale testaceous or whitish; membrane pale testaceous with piceous spots and suffusion; metathoracic wings pale infumate with veins Sc and R pale testaceous. Tarsi piceous with base of segment 3 and apex of segment 2 pale testaceous; tibiae with apex and a suffused median annulation, black; femora with strong and almost linear black suffusion; coxae piceous; tubercles on coxae pale testaceous; anterior trochanters pale testaceous, with denticulate area piceous; median and posterior trochanters pale testaceous.

STRUCTURE. Principal tubercles on basal rostral segment sub-cordate. Carinae enclosing flattened area of abdomen ventrally moderately well-defined. Projections on posterior margin of posterior pronotal lobe hardly at all prominent, rounded. Connexival segments dorsally obscurely granulose; apical margin of segments with very few tubercles.

| | ♂ | ♀ |
|-----------------------------------|-----------|-----------|
| Total length | 23.50 mm. | 27.00 mm. |
| Hemelytra | 15.50 mm. | 16.00 mm. |
| Greatest pronotal width | 11.00 mm. | 11.50 mm. |

SPECIMENS EXAMINED. One ♂ (holotype), Philippine Is. Samar, (B.M., 96-277); 1 ♀, Cape Engano, Luzon (pres. by subscribers to Whitehead Exped). Both in British Museum (Nat. Hist.) London.

OVUM (Text-fig. 20, J). Cylindrical with one side moderately strongly curved and the other side straight. Chorion punctate near opercular end and remainder obscurely reticulate; chorion and operculum piceous; differentiated portion of chorion whitish. 3 mm.

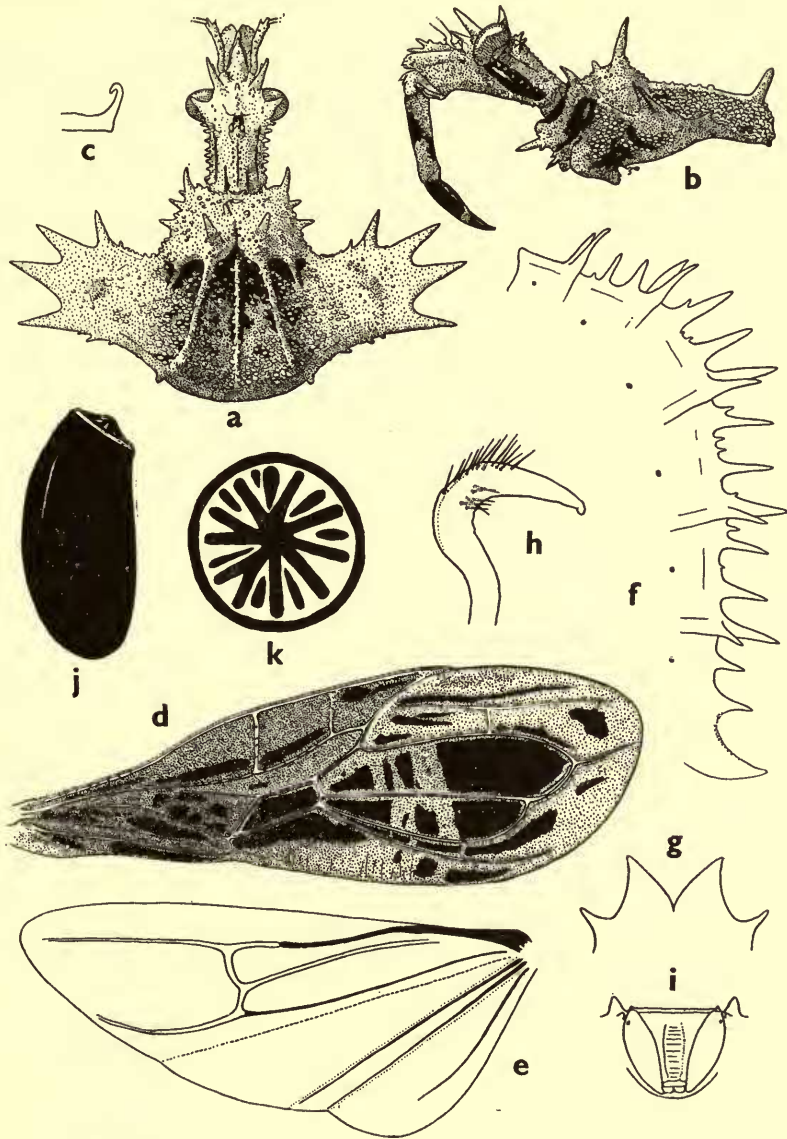


FIG. 20. *Neocentrocnemis philippinensis* (Distant) gen. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine, (lateral view) (probably deformed); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♂; H. harpago; I. apex of abdomen, ♀; J. ovum; K. operculum.

Neocentrocnemis roepkei (Miller)

(Text-fig. 21)

1955, *Tijdschr. Ent.* 98, 61.

COLOUR. Testaceous. Vertex, both lobes of pronotum, pleura, abdomen ventrally with suffused black spots; connexivum and abdomen dorsally with confluent black spots; each segment of connexivum basally with a diagonal very pale testaceous or yellowish spot. Basal segment of rostrum, segment 2 with an irregular annulation interrupted on inner surface, black; segment 3 and 4 piceous, the former with testaceous suffusion on inner surface. Corium with very fine blackish maculation and suffused black spots; most cross-veins and tubercles in costal area white; membrane greyish with suffused dark infumate spots; metathoracic wings faintly testaceous and with infumate suffusion; vein R yellowish. Sterna black, except prosternum laterally, testaceous. Anterior and median femora with black suffusion basally and apically; posterior femora with a wide, irregular sub-basal and sub-apical annulation black; anterior and median tibiae with black basal, median and apical annulations, the basal annulation somewhat obscure; posterior tibiae with dark brown suffusion and with apex narrowly black; coxae pale testaceous with piceous suffusion; trochanters pale testaceous.

STRUCTURE. Jugs with prominent, conical, setigerous tubercles. Tubercles on head laterally conical and setigerous; postocular with a sub-acute conical tubercle near external margin of ocelli. Principal tubercles on basal rostral segment quadrate with angles rounded. Projections on posterior margin of posterior pronotal lobe very feeble, rounded. Carina enclosing flattened area of abdomen ventrally well-defined, obscurely granulose.

| | ♂ | ♀ |
|-----------------------------------|-----------|-----------|
| Total length | 21.50 mm. | 24.00 mm. |
| Hemelytra | 14.00 mm. | 15.00 mm. |
| Greatest pronotal width | 7.50 mm. | 9.00 mm. |

SPECIMENS EXAMINED. One ♂ (holotype), O. Java, Bangelan, W. Roepke; 1 ♀ (paratype), Soekaboemi, F. le Mout.

Holotype in Zoologisch Museum, Amsterdam, paratype in Rijksmuseum van Natuurlijke Historie, Leiden, The Netherlands.

OVUM (Text-fig. 21, J). Cylindrical somewhat curved apically. Chorion glabrous, very obscurely reticulate. Chorion and operculum piceous; differentiated portion of chorion whitish. 2.50 mm.

Neocentrocnemis palawanica sp. n.

(Text-fig. 22)

COLOUR. Testaceous. Segments 2-4 of antennae suffused with brown; segment 2 narrowly whitish apically. Segments 1 and 2 of rostrum testaceous; segment 2 strongly suffused with black; segments 3 and 4 piceous, the former narrowly testaceous apically. Postocular laterally with a longitudinal brownish stripe. Discal tubercles on anterior lobe of pronotum narrowly piceous apically; anterior lobe anter-

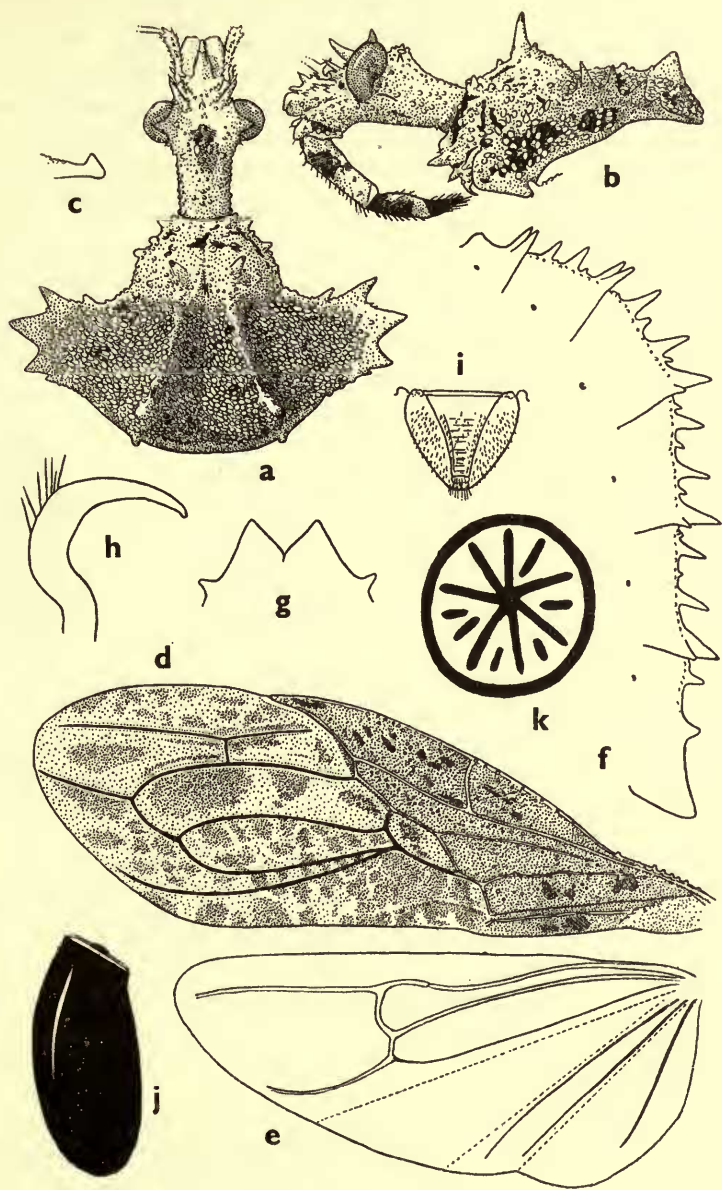


FIG. 21. *Neocentrocnemis roepkei* (Miller) gen. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♂; H. harpago; I. apex of abdomen, ♀; J. ovum; K. operculum.

iorly with confluent spots, posterior lobe medially sub-dorsally and posteriorly, pleura with confluent spots and suffusion, black; meso- and metasternum black. Abdomen ventrally strongly suffused with black and with wide T-shaped black spots on midventral flattened area; connexivum with brownish suffusion. Corium greyish testaceous with fine black maculation; veins paler; membrane greyish testaceous with large and small spots in cells and marginally brown; metathoracic wings pale infumate; veins Sc and R testaceous. Tarsi black with segments 2 and 3 partly testaceous; tibiae with apex and a median annulation black, the annulation on posterior tibiae very wide; femora, except base and apex narrowly, strongly suffused with piceous.

STRUCTURE. Principal tubercles on basal rostral segment quadrate with angles rounded. Carinae enclosing flattened area of abdomen ventrally moderately well-defined and granulose. Connexival segments dorsally obscurely granulose; apical margin of segments 3-5 with many very short tubercles. Projections on posterior margin of posterior pronotal lobe very short, rounded. Postocular very obscurely tuberculate.

| | ♂ | ♀ |
|-----------------------------------|-----------|-----------|
| Total length | 23.00 mm. | 25.00 mm. |
| Hemelytra | 14.50 mm. | 16.00 mm. |
| Greatest pronotal width | 9.00 mm. | 9.50 mm. |

SPECIMENS EXAMINED. One ♂ (holotype); 3 ♂♂, 1 ♀ (paratypes), Philippine Is., Binaluan, N. Palawan, Nov.-Dec., 1913, leg. G. Boettcher (Taüber coll., B.M., 1949-474).

Holotype; 2 ♂♂, 1 ♀ (paratypes) in British Museum (Nat. Hist.), London; 1 ♂ (paratype) in Deutsches Entomologisches Institut, Berlin.

OVUM (Text-fig. 22, J). Cylindrical, somewhat curved at opercular end. Chorion glabrous. Chorion and operculum piceous; differentiated portion of chorion whitish. 2.50 mm.

2nd instar neanide (Text-fig. 3, A)

COLOUR. Testaceous with strong fuscous suffusion on vertex; nota, abdomen dorsally and ventrally, pleura and sterna piceous. Tarsi pale testaceous with apex of apical segment brownish; anterior and median tibiae with apex and a median annulation piceous; posterior tibiae with faint blackish suffusion; anterior femora with blackish areas on inner and outer basal and apical surfaces; median and posterior femora suffused with black; coxae and trochanters pale testaceous, the former with piceous suffusion.

STRUCTURE. Most of long spines with short lateral setigerous spines and tubercles. External margin of connexival segments with very short, slender spines between long spines. Abdomen sub-dorsally with erect, cylindrical tubercles near ostioles of dorsal glands, those on segments 3 the longest and most widely separated. Striae in stridulatory furrow well-developed. Ostioles of pro- and mesopleural spiracles elongate. Total length 7 mm.

SPECIMEN EXAMINED. One 2nd instar neanide, Philippine Is. Binaluan, N. Palawan, Nov.-Dec., 1913, leg. G. Boettcher (Taüber coll., B.M., 1949-474).

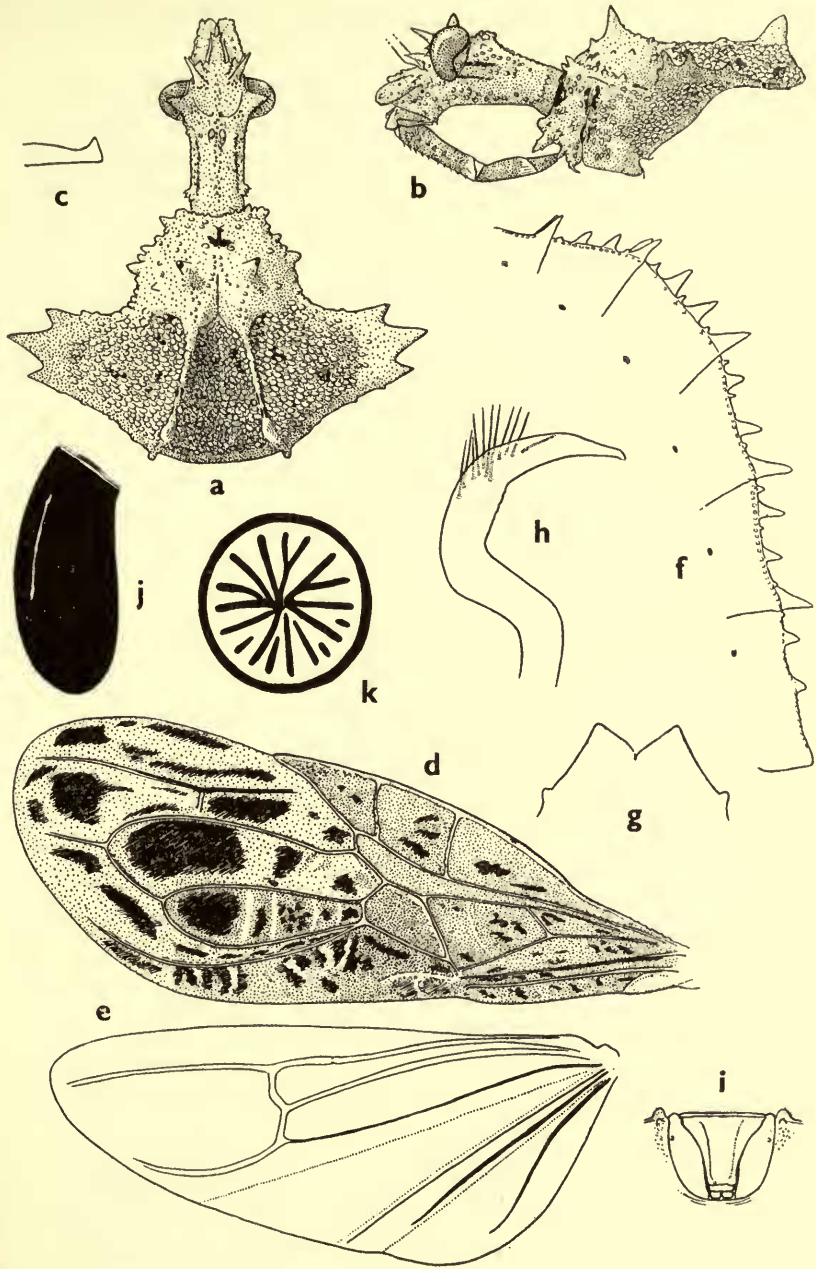


FIG. 22. *Neocentrocnemis palawanica* gen. n., sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♂; H. harpago; I. apex of abdomen, ♀; J. ovum; K. operculum.

3rd instar neanide (Text-fig. 3, B)

Similar in coloration to 2nd instar, but differs in the more intense black and fuscous spots.

STRUCTURE. The chief differences from the 2nd instar are the shape of the spines, which are more robust and lack lateral setigerous tubercles and spines, and the much wider lateral expanded portion of the mesonotum. Total length 12 mm.

SPECIMEN EXAMINED. One 3rd instar neanide (same data as for 2nd instar).

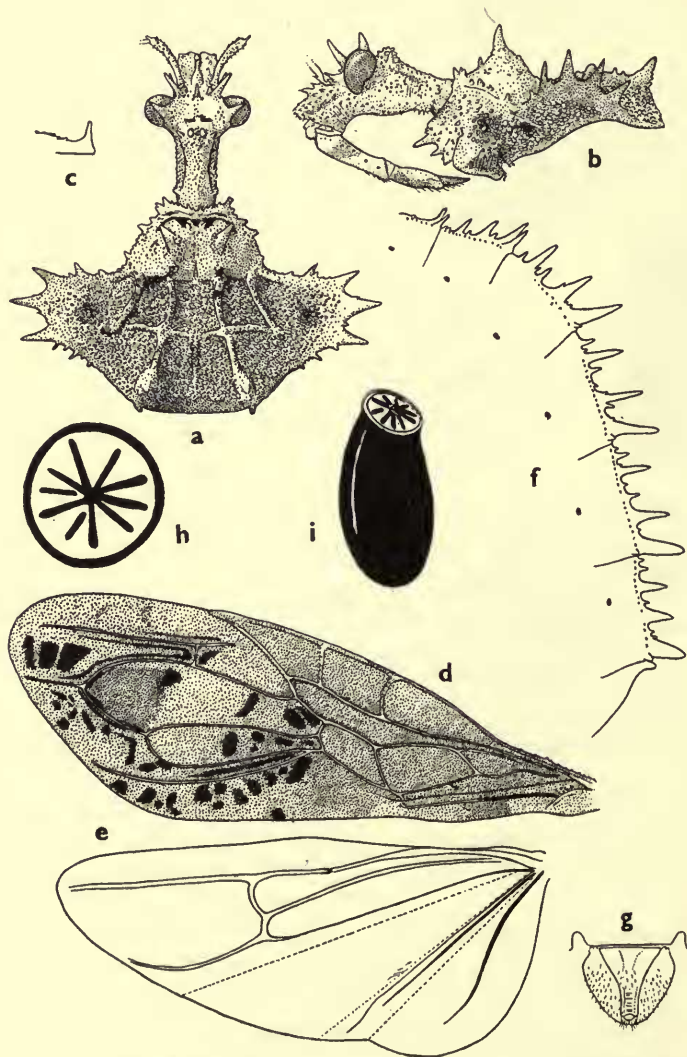


FIG. 23. *Neocentrocnemis celebensis* gen. n., sp. n. A. Head and pronotum (dorsal view); B. head; pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♀; H. operculum; I. ovum.

Neocentrocnemis celebensis sp. n.

(Text-fig. 23)

COLOUR. Testaceous. Segments 2 and 3 of rostrum with piceous suffusion. Head with a narrow black stripe on postocular laterally. Pronotum, pleura, meso- and metasternum suffused with piceous. Scutellum brown; apical spine pale testaceous. Connexivum dorsally with a narrow fuscous stripe on each segment basally; abdomen ventrally with strong brown and piceous suffusion. Corium blackish with very fine brown maculation; venation brownish; membrane testaceous with fuscous spots; metathoracic wings pale infumate. Tarsi basally and apically piceous; anterior tibiae with a narrow median and apical annulation, median tibiae with a narrow apical and very wide median annulation brown; femora strongly suffused with piceous; trochanters testaceous; coxae testaceous with suffused piceous spots.

STRUCTURE. Principal tubercles on basal rostral segment quadrate with the angles rounded. Lateral expansions of posterior pronotal lobe hardly at all tuberculate. Connexival segments very feebly and obscurely granulose; apical margin of segments with some low, rounded tubercles. Projections on posterior margin of posterior pronotal lobe obsolescent. Carinae enclosing flattened area of abdomen ventrally obsolescent, feebly granulose. Abdomen in outline strongly elliptical.

| | | | |
|-------------------------|-----------|----|-----------|
| Total length | | ♀. | 23.00 mm. |
| Hemelytra | | | 15.00 mm. |
| Greatest pronotal width | | | 9.00 mm. |

SPECIMEN EXAMINED. One ♀ (holotype), Celebes (Coll. Breddin).

Holotype in Deutsches Entomologisches Institut, Berlin, Germany.

OVUM (Text-fig. 23, J). Cylindrical somewhat curved at opercular end. Chorion smooth, minutely reticulate. Chorion and carinae on operculum piceous; differentiated portion of chorion whitish. 2.50 mm.

Neocentrocnemis stali (Reuter)

(Text-fig. 24)

1881, ad *Cognit, Reduw. Mundi Antiqui*, 65; *Acta Soc. Sci. fenn.*, 12.

COLOUR. Pale testaceous. Segment 2 of antennae whitish apically and with a piceous narrow, sub-apical annulation. Head with a transverse stripe between eyes and a narrow stripe from eyes laterally almost to base; gula basally piceous. Rostrum with faint suffusion on segment 1 and strong suffusion on remaining segments, blackish. Anterior lobe of pronotum with suffusion anteriorly and laterally; posterior lobe anteriorly blackish. Pleura, meso- and metasternum almost entirely piceous. Scutellum brown; apical spine paler. Corium greyish with veins white except basal half of R and base of costa, brownish; clavus with fuscous suffusion apically; membrane whitish with strong fuscous suffusion basally and fuscous spots on external margin, in cells and apically; metathoracic wings hyaline, faintly infumate. Con-

nexivum dorsally brownish with black suffusion and confluent spots. Abdomen ventrally with all segments strongly suffused with piceous. Coxae piceous with testaceous suffusion; trochanters testaceous; femora with strong piceous suffusion;

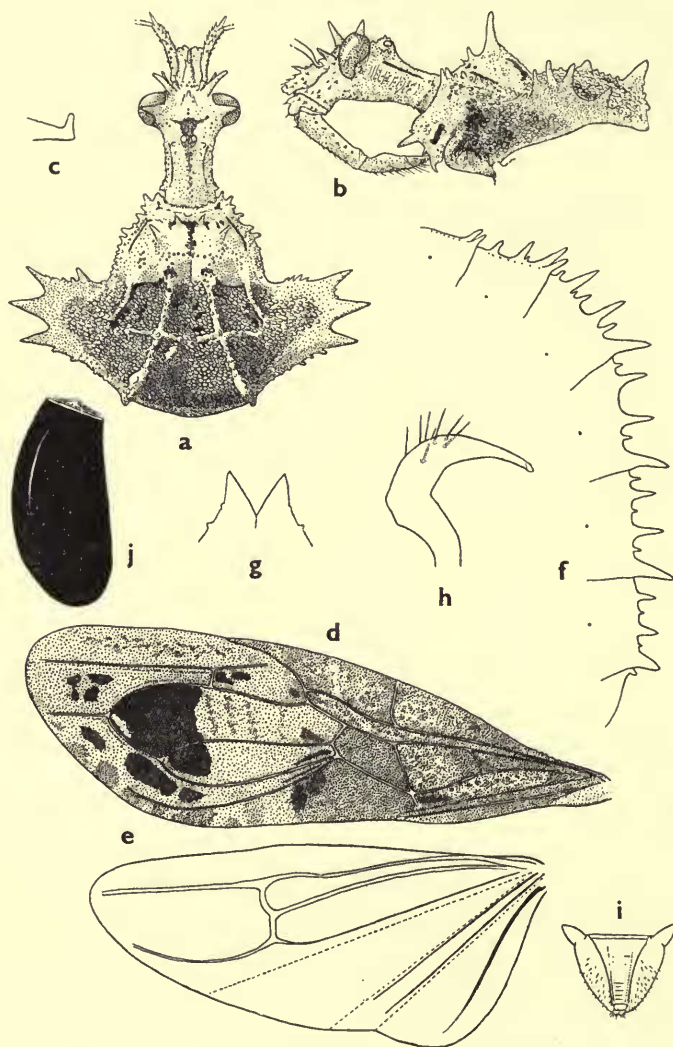


FIG. 24. *Neocentrocnemis stali* (Reuter) gen. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♂; H. harpago; I. apex of abdomen, ♀; J. ovum.

anterior and median tibiae with an apical and median black annulation; posterior tibiae with a wide brownish suffusion medially and apically.

STRUCTURE. Head sparsely tuberculate, the tubercles on lower margin conical, acute. Carinae enclosing flattened area of abdomen ventrally very feeble. Principal

tubercles on basal rostral segment conical, broadly rounded. Connexival segments dorsally very obscurely granulose. Projections on posterior margin of posterior pronotal lobe very feeble, rounded.

| | ♂ | ♀ |
|-----------------------------------|-----------|-----------|
| Total length | 20.00 mm. | 22.00 mm. |
| Hemelytra | 13.00 mm. | 13.00 mm. |
| Greatest pronotal width | 7.50 mm. | 8.00 mm. |

SPECIMENS EXAMINED. One ♂, India, Chandkira, Sylhet, (B.M., 1926-171); 1 ♂, Sikkim, (B.M., 1911-383); 1 ♀, Burma, N. Khasia, 1,500-3,000 ft., Chennel, (B.M., 1911-383); 1 ♀, Assam, W. F. Badgley, (B.M., 1906-185); 1 ♀ (holotype), India, Darjeeling. Staudinger.

Holotype in Naturhistoriska Riksmuseum, Stockholm, Sweden.

OVUM (Text-fig. 24, J). Cylindrical, curved on one side, almost straight on the other. Chorion smooth, minutely reticulate. Chorion and ridges on operculum piceous; differentiated portion of chorion whitish. 2.50 mm.

Neocentrocnemis semiarmata sp. n.

(Text-fig. 25)

COLOUR. Testaceous. Segments 1 and 2 of antennae pale testaceous; segment 2 with faint brownish annulation sub-apically. Segment 2 of rostrum pale testaceous with brown suffusion on outer surface; segments 3 and 4 piceous. Propleura anteriorly, meso- and metapleura with strong piceous suffusion. Subdorsal tubercles on anterior pronotal lobe narrowly brown apically. Disc of scutellum piceous. Connexivum dorsally pale testaceous with brown and fuscous suffusion; abdomen dorsally with transverse piceous stripes; ventrally piceous, except basal part of carinae enclosing flattened area of segments 3-6, and connexivum testaceous. Corium pale testaceous with fuscous suffused spots on clavus and fuscous suffusion elsewhere; membrane pale testaceous with suffusion and large spots fuscous; metathoracic wings infumate. Basal segment of tarsi piceous; segment 2 pale testaceous, narrowly piceous basally; segment 3 piceous, broadly testaceous basally; anterior and median tibiae black apically; posterior tibiae testaceous, narrowly black apically and with a faint median brownish suffusion; femora testaceous with strong black suffusion in basal half; trochanters testaceous; coxae piceous with tubercles testaceous.

STRUCTURE. Principal tubercles on basal rostral segment conical, rounded apically; internal tubercle very short, conical, acute; segment 2 of rostrum a little longer than segments 3 and 4 together. Connexival segments dorsally obscurely granulose; apical margin of segments with a few low, rounded tubercles. Projections on posterior margin of posterior pronotal lobe short, narrowly rounded apically. Pleura very sparsely tuberculate. Carinae enclosing flattened area of abdomen ventrally distinct, obscurely granulose. Anterior femora with comparatively few spines, mostly very short and acutely conical; median femora with moderately long,

slender, acute spines on lower surface; posterior femora with a few acute spines on lower surface apically and a moderately long acute spine on apical margin.

| | ♂ | ♀ |
|-----------------------------------|-----------|-----------|
| Total length | 21.00 mm. | 22.00 mm. |
| Hemelytra | 12.50 mm. | 13.00 mm. |
| Greatest pronotal width | 9.00 mm. | 9.00 mm. |

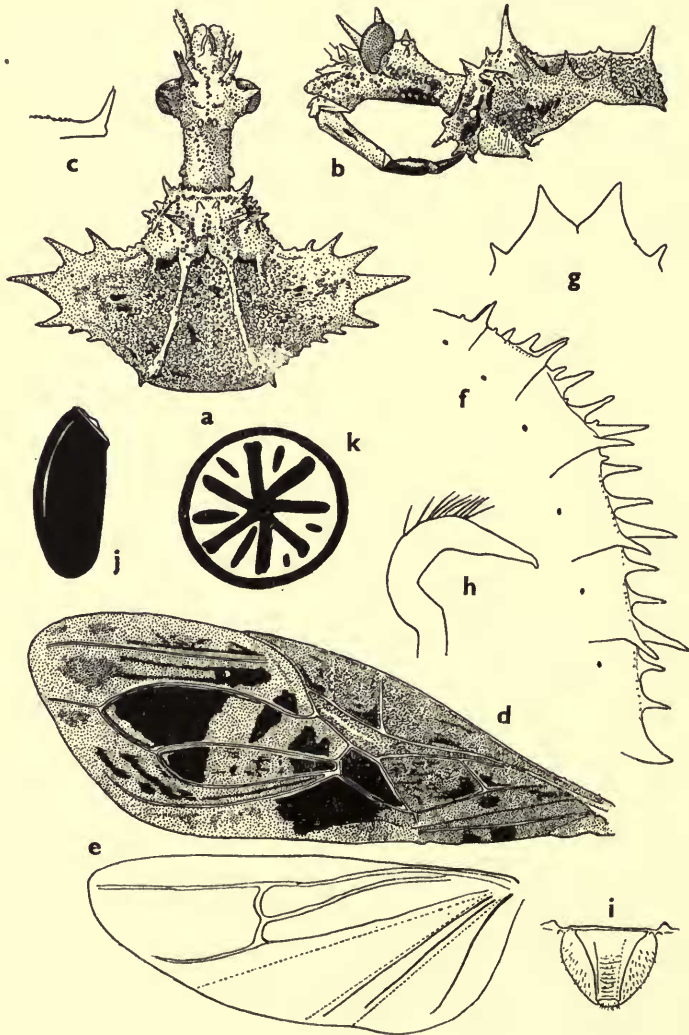


FIG. 25. *Neocentrocnemis semiarmata* gen. n., sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♂; H. harpago; I. apex of abdomen, ♀; J. ovum; K. operculum.

SPECIMENS EXAMINED. One ♂ (holotype), 1 ♀ (paratype), Philippine Is., Mt. Isarog, 4,000 ft., S. Luzon, leg. G. Boettcher (Taüber coll., B.M., 1949-474).

Holotype and paratype in British Museum (Nat. Hist.) London.

OVUM (Text-fig. 25, J). Cylindrical, curved on one side, straight on other; opercular end oblique. Chorion sub-glabrous. Chorion and carinae on operculum piceous; differentiated portion of chorion whitish. 3.50 mm.

Neocentrocnemis impavida sp. n.

(Text-fig. 26)

COLOUR. Testaceous. Antennae missing. Gula brown laterally; base of head, except dorsally, shining piceous. Postocular with an interrupted narrow black stripe laterally. Both lobes of pronotum, pleura with black areas and spots. Abdomen dorso-laterally and connexivum with black suffusion; ventrally strongly suffused with black. Corium pale testaceous with fuscous spots; membrane whitish testaceous with fuscous suffusion and spots; metathoracic wings faintly infumate. Tarsi testaceous; apical segment piceous apically; anterior and median tibiae with apex and a median annulation black; posterior tibiae with piceous suffusion apically and a very faint brown suffusion medially; anterior and median femora with strong piceous suffusion; posterior femora piceous, except apex; trochanters testaceous; anterior coxae testaceous with piceous spot; median and posterior coxae almost entirely piceous.

STRUCTURE. Principal tubercles on basal rostral segment trapeziform with angles rounded; inner tubercles short, cylindrical. Projections on posterior margin of posterior pronotal lobe feeble, rounded. Connexival segments dorsally with abundant granules on segments 3-6; apical margin of segments 3 and 4 with a few rounded tubercles. Carinae enclosing flattened area of abdomen ventrally prominent, strongly granulose.

| | |
|-----------------------------------|-----------|
| | ♀ |
| Total length | 25.00 mm. |
| Hemelytra | 14.00 mm. |
| Greatest pronotal width | 10.00 mm. |

SPECIMEN EXAMINED. One ♀ (holotype), Philippine Is., Kolambugan, N. Mindanao, leg. G. Boettcher (Tauber coll., B.M., 1949-474).

Holotype in British Museum (Nat. Hist.), London.

Paracentrocnemis gen. nov.

Basal segment of antennae shorter than anteocular; segment 3 much longer than basal segment. Anteocular a little shorter than postocular. Segment 2 of rostrum thicker basally than apically. Connexival segments with very short tubercles on external margin. Anterior tibiae simple. Scutellum with a short erect spine apically. Posterior tibiae sub-equal in length to posterior femora. Metathoracic wings hyaline.

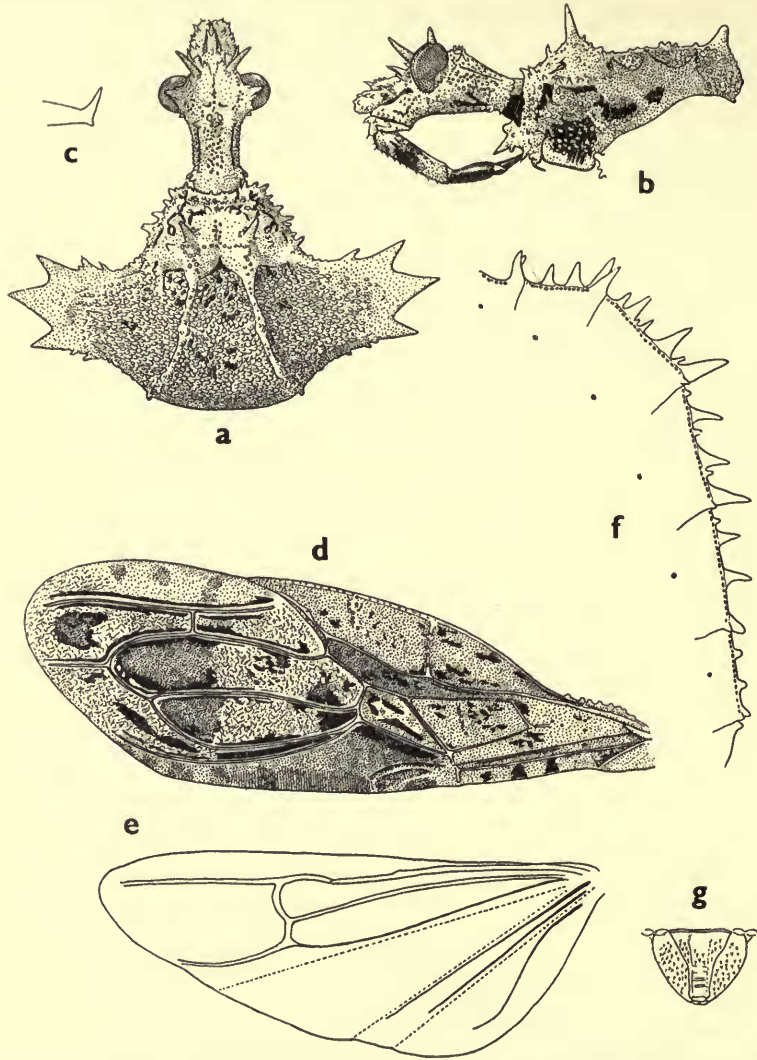


FIG. 26. *Neocentrocnemis impavida* gen. n. sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar (spine lateral view), D. hemelytron, E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♀.

Type Species *Centrocnemis dearmata* Distant.

Key to *Paracentrocnemis* species

- | | |
|--|----------------------------|
| 1. Lateral spines on collar black | 2. |
| -. Lateral spines on collar testaceous | 3. |
| 2. Lateral spines on collar very short, conical, acute | <i>dearmata</i> (Distant). |
| -. Lateral spines on collar moderately long, cylindrical, acute | <i>campbelli</i> sp. n. |
| 3. Lateral expanded area of posterior pronotal lobe truncate with a broad median triangular projection | <i>rugipennis</i> sp. n. |

Paracentrocnemis dearmata (Distant)

(Text-fig. 27)

1904, Fauna Brit. India, Rhyn. 2, 246.

COLOUR. Testaceous. Tubercles and spines paler; lateral spine on collar black. Apical scutellar spine whitish. Head laterally, segments 2 and 3 of rostrum, pleura, suffused with piceous. Corium suffused with black and with rugulose areas and confluent tubercles whitish; membrane with large fuscous spot in external cell and apically; metathoracic wings hyaline. Anterior and median tibiae with basal,

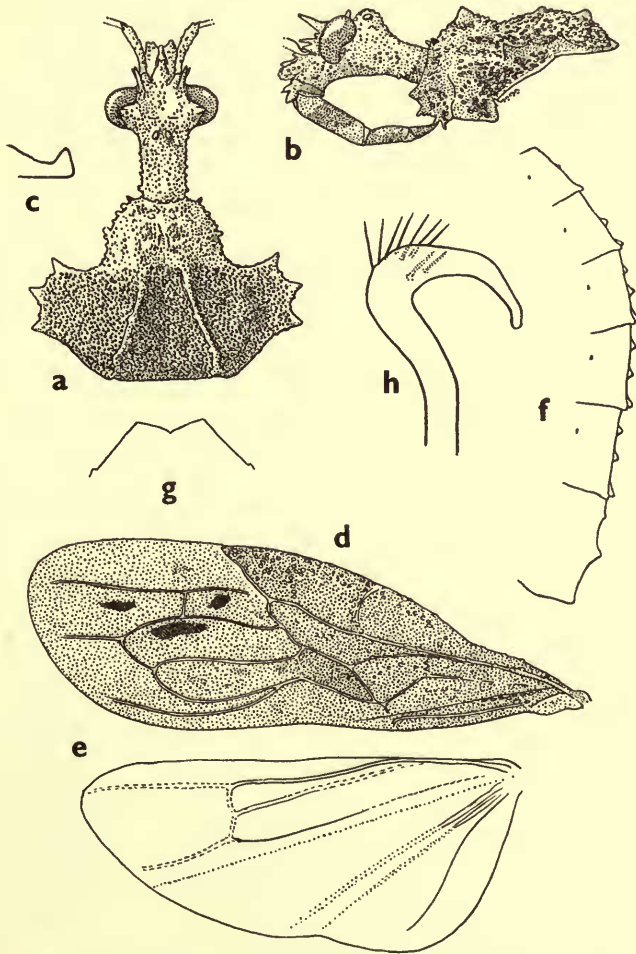


FIG. 27. *Paracentrocnemis dearmata* (Distant) gen. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♂; H. harpago.

median and apical suffused piceous annulations; posterior tibiae piceous, except narrowly basally pale testaceous; apical half of 3rd. tarsal segment piceous.

STRUCTURE. Principal tubercles on basal rostral segment triangular. Spines on lateral expansions of posterior pronotal lobe very short, conical. Carinae enclosing flattened area of abdomen ventrally very distinct. Projections on posterior margin of posterior pronotal lobe obsolescent.

| | |
|-----------------------------------|-----------|
| | ♂ |
| Total length | 13.50 mm. |
| Hemelytra | 9.00 mm. |
| Greatest pronotal width | 4.50 mm. |

SPECIMEN EXAMINED. One ♂ (holotype), Ceylon, Colombo, Lewis (Distant coll., B.M., 1911-383).

Holotype in British Museum (Nat. Hist.), London.

Paracentrocnemis rugipennis sp. n.

(Text-fig. 28)

COLOUR. Dark testaceous. Segments 2 and 3 of rostrum suffused with black; segment 4 piceous. Postocular laterally with two somewhat obscure, parallel black stripes. Pleura with piceous suffusion. Metasternum piceous. Apex of scutellar spine pale testaceous. Abdomen ventrally with confluent maculation and a wide black stripe along external margin of carinae enclosing flattened area. Corium pale testaceous with fine black maculation; membrane greyish testaceous with a suffused fuscous spot in external cell and apically; metathoracic wings hyaline very faintly infumate in sub-costal area apically; veins Sc and R pale testaceous with apical half of R. brown. Anterior tibiae narrowly black apically and with a somewhat irregular basal and median black annulation; tarsi piceous apically; posterior tibiae suffused with piceous; femora strongly suffused with black; coxae and trochanters suffused with piceous.

STRUCTURE. Principal tubercles on basal rostral segment conical, acute. Carinae enclosing flattened area of abdomen ventrally moderately distinct. Projections on posterior margin of posterior pronotal lobe absent. Dorsal surface of connexival segments coarsely but sparsely granulose; apical margin of segments with feeble, low, rounded tubercles.

| | | |
|-----------------------------------|-----------|-----------|
| | ♂ | ♀ |
| Total length | 17.00 mm. | 17.00 mm. |
| Hemelytra | 12.00 mm. | 11.50 mm. |
| Greatest pronotal width | 6.00 mm. | 6.00 mm. |

SPECIMENS EXAMINED. One ♂ (holotype), 1 ♂, (paratype), Ceylon, Maskeliya; 1 ♀ (paratype), (no precise locality), Lewis, (Distant coll., B.M., 1911-383); 1 ♀ (paratype), Pundaloya.

Holotype and paratypes in British Museum (Nat. Hist.), London.

OVUM (Text-fig. 28, j). Cylindrical, somewhat curved at opercular end. Chorion glabrous, sparsely reticulate. Chorion and ridges on operculum piceous or dark brown; operculum testaceous; differentiated portion of chorion whitish. 2.50 mm.

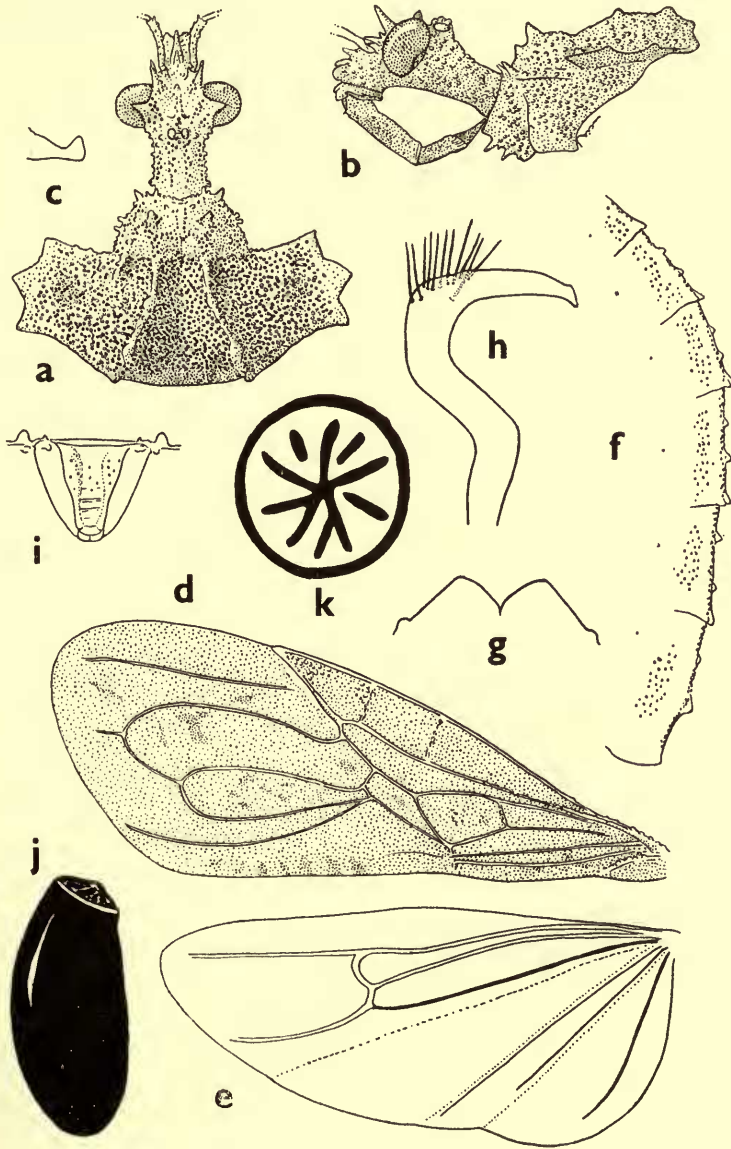


FIG. 28. *Paracentrocnemis rugipennis* gen. n., sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♂; H. harpago; I. apex of abdomen, ♀; J. ovum; K. operculum.

3rd instar neanide (Text-fig. 3, D)

COLOUR. Testaceous with black suffusion on antennae, head, pronotum and segments 3-5 of abdomen dorsally. Longer spines on head and pronotum and on connexival segments almost entirely black. Tarsi testaceous; apical segment suffused with black; anterior and median tibiae apically and with a median annulation, brownish; posterior tibiae, except base, brown. Pleura and sterna piceous. Total length 4.50 mm.

SPECIMEN EXAMINED. One 3rd instar neanide, Ceylon (no precise locality).

Paracentrocnemis campbelli sp. n.

(Text-fig. 29)

COLOUR. Dark testaceous. Third and 4th segments of rostrum suffused with piceous. Base of gula, lateral spines on collar piceous. Some tubercles on collar and on anterior pronotal lobe laterally reddish. Apical spine of scutellum very pale testaceous. Meso- and metapleura suffused with piceous. Corium suffused with black; membrane with black suffused spot in external cell and apically; meta-thoracic wings hyaline. Segments 4-6 of abdomen with a brown spot laterally on midventral flattened area; connexival segments with obscure pale testaceous spots. Anterior and median tibiae apically narrowly black and with a faint median brownish annulation; posterior tibiae narrowly apically and with a wide median annulation brownish.

STRUCTURE. Principal tubercles on basal rostral segment conical, acute. Connexival segments dorsally finely granulose; apical margin of segments with a very few, very feeble, low, rounded tubercles. Carinae enclosing flattened area of abdomen midventrally very distinct. Projections on posterior margin of posterior pronotal lobe feeble, rounded.

| | ♂ | ♀ |
|-----------------------------------|-----------|-----------|
| Total length | 15.50 mm. | 15.50 mm. |
| Hemelytra | 9.50 mm. | 9.50 mm. |
| Greatest pronotal width | 5.00 mm. | 5.00 mm. |

SPECIMENS EXAMINED. One ♂ (holotype); 1 ♂, 2 ♀♀ (paratypes), S. India (no precise locality); 1 ♂, Chikkaballapura (B.M., 171-1926).

Holotype and paratypes in British Museum (Nat. Hist.) London.

OVUM (Text-fig. 29, J). Cylindrical, much narrower and somewhat curved at opercular end. Chorion glabrous very feebly reticulate. Chorion and ridges on operculum piceous; operculum testaceous; differentiated portion of chorion whitish. 2.50 mm.

5th instar neanide (Text-fig. 3, c)

COLOUR. Testaceous. Antennae, head, anterior lobe of pronotum, segment 2 of rostrum suffused with black. Lateral spines on collar black. Apex of some marginal spines on rudimentary hemelytra brown. Meso- and metapleura and sterna piceous, the former with testaceous maculation. Abdomen dorsally and ventrally with strong

fuscous confluent maculation and suffusion. Ostioles of abdominal glands reddish. Tarsi pale testaceous with apical half of segments piceous; anterior and median tibiae with apex and a somewhat irregular median annulation fuscous; posterior tibiae with a wide, somewhat irregular fuscous suffusion in apical three-fourths; femora with fuscous suffusion; coxae and trochanters pale testaceous with fuscous suffusion. Total length 11 mm.

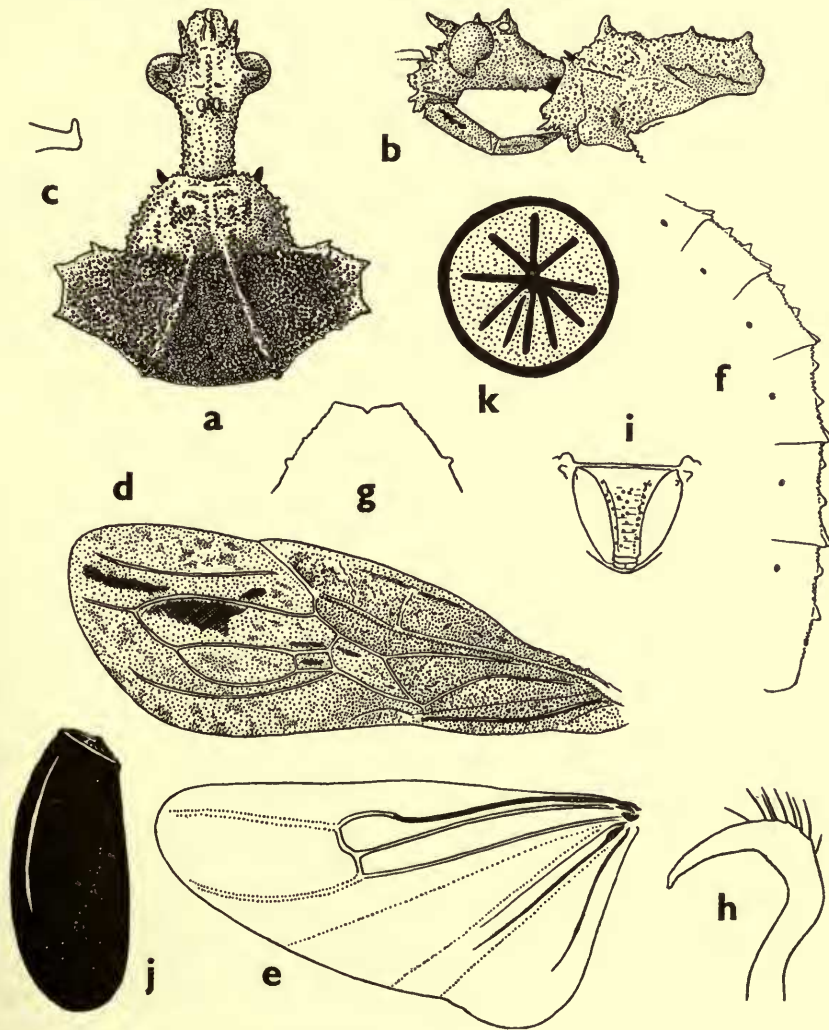


FIG. 29. *Paracentrocnemis campbelli* gen. n., sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♂; H. harpago; I. apex of abdomen, ♀; J. ovum; K. operculum.

SPECIMEN EXAMINED. One 5th instar neanide, S. India, Chikkaballapura, T. V. Campbell. (B.M., 1926-171).

Centrocnemoides gen. nov.

Basal segment of antennae sub-equal in length to anteocular. Segment 2 of rostrum a little thicker basally than apically. Anteocular much shorter than postocular. Connexival segments with 2 spines at external apical angle of segments 2 and 3. Scutellum with an erect spine laterally compressed. Posterior tibiae longer than posterior femora. Metathoracic wings yellow.

Type species *Centrocnemis granulosa* Stål

Key to *Centrocnemoides* species

1. Postocular with two narrow, short, black stripes sub-basally laterally; lateral tubercles on anterior pronotal lobe distinctly white apically *granulosa* (Stål).
- . Postocular suffused with black; lateral tubercles on anterior pronotal lobe unicolorous 2.
2. Juga strongly tuberculate 3.
- . Juga almost smooth *sumatrana* sp. n.
3. Inner basal area of membrane and spots in cells fuscous *drescheri* sp. n.
- . Inner basal area of membrane and spots in cells brown *horsfieldi* sp. n.

Centrocnemoides granulosa (Stål)

(Text-fig. 30)

1861, *Ofv. Vet. Ak. Förh.* 244.

COLOUR. Pale testaceous with most of the tubercles pale luteous apically. Segment 2 of rostrum with black suffusion medially; segments 3 and 4 piceous. Pronotum and pleura with black confluent spots. Disc of scutellum black; tubercles dark testaceous. Corium blackish with veins mostly white and with pale tubercles and confluent spots; membrane with strong brown and fuscous suffusion basally and with suffused fuscous spots in cells and on remainder; metathoracic wings dark yellow. Connexivum with confluent black spots and testaceous tubercles and granules; segments 2 and 3 of abdomen ventrally strongly suffused with piceous; remaining segments with faint blackish suffusion; Coxae brown or piceous with pale testaceous suffusion; trochanters testaceous; femora with brown suffusion; anterior and median tibiae with an apical and a somewhat obscure median and basal annulation blackish; tarsi suffused with brown apically.

STRUCTURE. Principal tubercles on basal rostral segment oblong with the angles rounded. Carinae enclosing flattened area of abdomen ventrally moderately distinct. Projections on posterior margin of posterior pronotal lobe feeble, rounded. Dorsal surface of connexivum coarsely granulose; apical margin of segments with moderately large, conical tubercles.

| | ♂ | ♀ |
|-----------------------------------|-----------|-----------|
| Total length | 14.50 mm. | 16.50 mm. |
| Hemelytra | 9.50 mm. | 10.00 mm. |
| Greatest pronotal width | 5.50 mm. | 5.50 mm. |

SPECIMENS EXAMINED. One ♂ (holotype), Malacca (probably Malaya is intended) ; 1 ♀, Malaya, Gunong Tahan, Pahang, 2,500-3,500 ft., May, July, 1906, H. C. Robinson (B.M., 1907-48).

Holotype in Naturhistoriska Riksmuseum, Stockholm, Sweden.

OVUM (Text-fig. 30, j). Cylindrical, narrower and somewhat curved at opercular end ; chorion glabrous ; chorion and opercular elevated area brown ; operculum testaceous ; differentiated portion of chorion whitish. 2.50 mm.

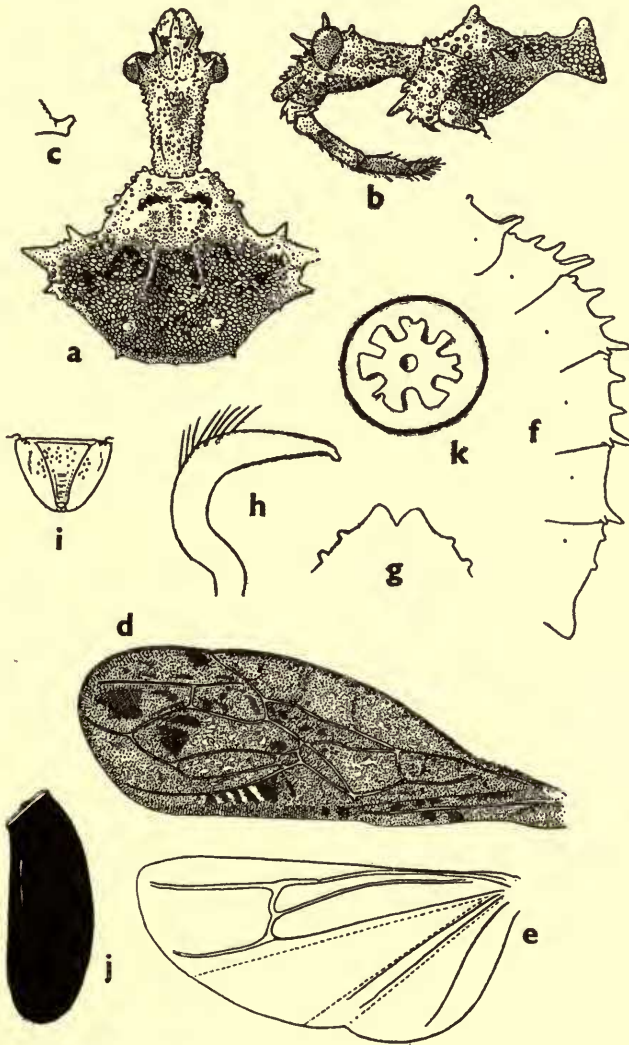


FIG. 30. *Centrocnemoides granulosa* (Stål) gen. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♂; H. harpago; I. apex of abdomen, ♀; J. ovum; K. operculum.

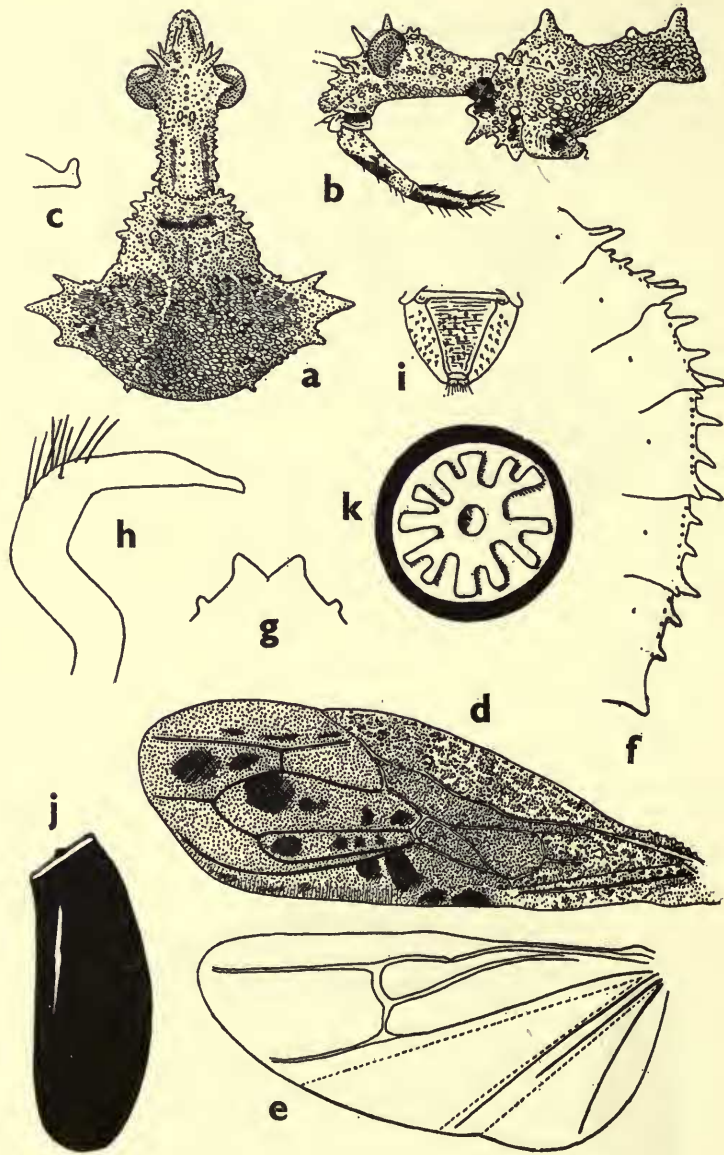


FIG. 31. *Centrocnemoides horsfieldi* gen. n., sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♂; H. harpago; I. apex of abdomen, ♀; J. ovum; K. operculum.

Centrocnemoides horsfieldi sp. n.

(Text-fig. 31)

COLOUR. Testaceous. Basal segment of rostrum almost entirely piceous; segment 2 pale testaceous with a median brownish suffusion; segments 3 and 4 piceous. Head with gula, a stripe laterally and sub-dorsally on postocular, a suffusion on juga laterally, black; vertex and tylus basally suffused with black. Anterior lobe of pronotum anteriorly, posterior lobe, except large tubercles and expanded lateral areas narrowly strongly suffused with black. Disc of scutellum black with tubercles brown; lateral margins and apex dark testaceous. Pleura and sterna suffused with black. Corium black with veins, some tubercles and rugose areas pale testaceous; membrane testaceous with strong fuscous suffusion in anal area and paler fuscous confluent spots and suffusion in remainder; metathoracic wings yellow. Connexivum black with pale oblique testaceous spot basally in each segment; tubercles mostly testaceous; spines blackish or dark testaceous; abdomen ventrally strongly suffused with black, particularly segment 3. Tarsi testaceous; anterior and median tibiae with an apical median and basal annulation black; posterior tibiae testaceous; femora with piceous suffusion.

STRUCTURE. Principal tubercles on basal rostral segment quadrate with the angles rounded. Costal margin of corium entirely tuberculate, the basal tubercles moderately large. Carinae enclosing flattened area of abdomen ventrally somewhat wide, feebly rounded. Projections on posterior margin of posterior pronotal lobe narrowly rounded apically, feebly concave on inner surface. Connexival segments dorsally coarsely granulose; apical margin of segments with a few sub-conical tubercles.

| | ♂ | ♀ |
|-----------------------------------|-----------|-----------|
| Total length | 14.50 mm. | 17.00 mm. |
| Hemelytra | 9.40 mm. | 10.00 mm. |
| Greatest pronotal width | 5.30 mm. | 5.50 mm. |

SPECIMENS EXAMINED. One ♂ (holotype); 1 ♀ (paratype), Java, (no precise locality), Horsfield (B.M., 1860-15: presented by Secretary of the India Board; collected by Dr. Horsfield, East India Company).

Holotype and paratype in British Museum (Nat. Hist.), London.

OVUM (Text-fig. 31, J). Cylindrical, narrower and somewhat curved at opercular end; chorion glabrous; very obscurely reticulate; chorion and elevated area of operculum piceous; differentiated portion of chorion whitish. 2.60 mm.

Centrocnemoides sumatrana sp. n.

(Text-fig. 32)

COLOUR. Testaceous and black with many of the low tubercles very pale apically. Segments 1 and 2 of rostrum with suffusion, segments 3 and 4 piceous. Postocular laterally with two narrow black stripes. Pronotum, pleura and sterna with strong black suffusion. Scutellum brown; tubercles and apical spine testaceous. Corium

black with confluent spots, tubercles and suffusion pale testaceous; membrane with strong fuscous suffusion basally and fuscous spots in cells and apically; metathoracic wings yellow. Connexivum black with pale testaceous tubercles and suffusion; abdomen ventrally strongly suffused with piceous laterally and with a linear piceous spot on segments 3-6 mid-ventrally. Tarsi piceous apically; anterior and median tibiae with basal, median and apical piceous annulations, the margins of which

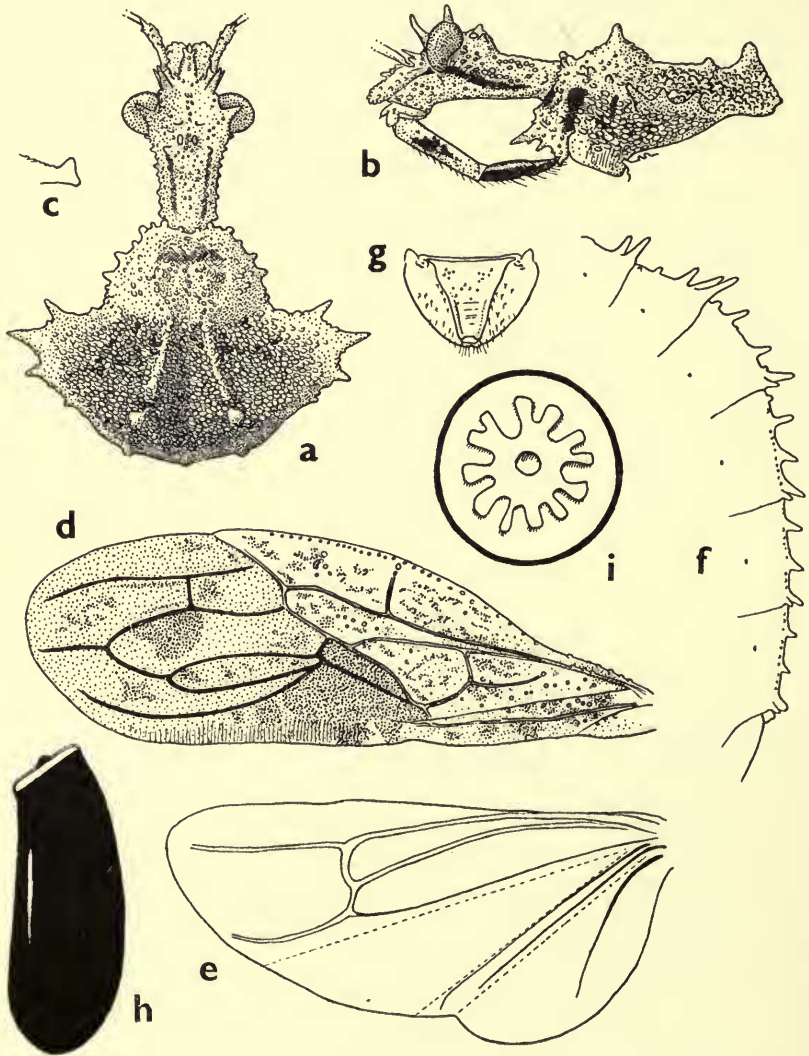


FIG. 32. *Centrocnemoides sumatrana* gen. n., sp. n. A. Head and pronotum (dorsal view); B. head, pronotum and mesopleural tubercles (lateral view); C. scutellar spine (lateral view); D. hemelytron; E. metathoracic wing; F. connexivum (ventral view); G. apex of abdomen, ♀; H. ovum; I. operculum.

somewhat ill-defined; posterior tibiae with obscure brownish suffusion medially and apically; anterior and median femora moderately, posterior femora strongly suffused with piceous; trochanters testaceous; coxae testaceous suffused with piceous.

STRUCTURE. Principal tubercles on basal rostral segment quadrate with the angles rounded. Costal margin of corium with moderately large tubercles basally. Carinae enclosing flattened area of abdomen ventrally moderately distinct and with a few low, rounded tubercles, some of which setigerous. Projections on posterior margin of posterior pronotal lobe moderately prominent, broadly rounded. Dorsal surface of connexival segments coarsely granulose or tuberculate; apical margin of segments with rounded tubercles of varied sizes.

| | |
|-----------------------------------|-----------|
| | ♀ |
| Total length | 16.50 mm. |
| Hemelytra | 9.50 mm. |
| Greatest pronotal width | 6.00 mm. |

SPECIMEN EXAMINED. One ♀ (holotype), Sumatra, (no precise locality), Forbes (Distant coll., B.M., 1911-383).

Holotype in British Museum, (Nat. Hist.), London.

OVUM (Text-fig. 32, H). Cylindrical narrower at opercular end and somewhat curved; chorion glabrous, very obscurely reticulate; chorion and elevated area of operculum dark brown or piceous; differentiated portion of chorion whitish. 2.60 mm.

Centrocnemoides drescheri sp. n.

(Text-fig. 33)

COLOUR. Testaceous. Head, pronotum and corium with strong black areas and suffusion. Tubercles on head, pleura and legs very pale. Membrane with a large spot basally at anal angle and spots and suffusion fuscous; metathoracic wings yellow. Basal segment of rostrum suffused with black; segment 2 with a wide, irregular median black annulation; segments 3 and 4 piceous; segment 3 light brown apically. Tarsi testaceous; segment 3 piceous apically; anterior and median tibiae with apex and a median annulation piceous; posterior tibiae with apex broadly and a very wide, somewhat obscure, dark brown median annulation; anterior and median femora with large piceous areas; posterior femora almost entirely piceous; coxae piceous with tubercles and suffusion pale testaceous.

STRUCTURE. Principal tubercles on basal rostral segment broadly conical. Projections on posterior margin of posterior pronotal lobe very short, rounded. Dorsal surface of connexival segments with abundant granules; apical margin of segments with a few, short, erect tubercles. Carinae enclosing flattened area of abdomen ventrally moderately distinct and granulose.

| | | |
|-----------------------------------|-----------|-----------|
| | ♂ | ♀ |
| Total length | 14.00 mm. | 18.00 mm. |
| Hemelytra | 9.00 mm. | 10.00 mm. |
| Greatest pronotal width | 5.50 mm. | 6.00 mm. |

SPECIMENS EXAMINED. One ♂ (holotype) ; 1 ♀ (paratype), Java, Gunong Slamet, Batoerraden, 10 and 11-1927, F. C. Drescher.

Holotype and paratype in Zoologisch Museum, Amsterdam, The Netherlands.

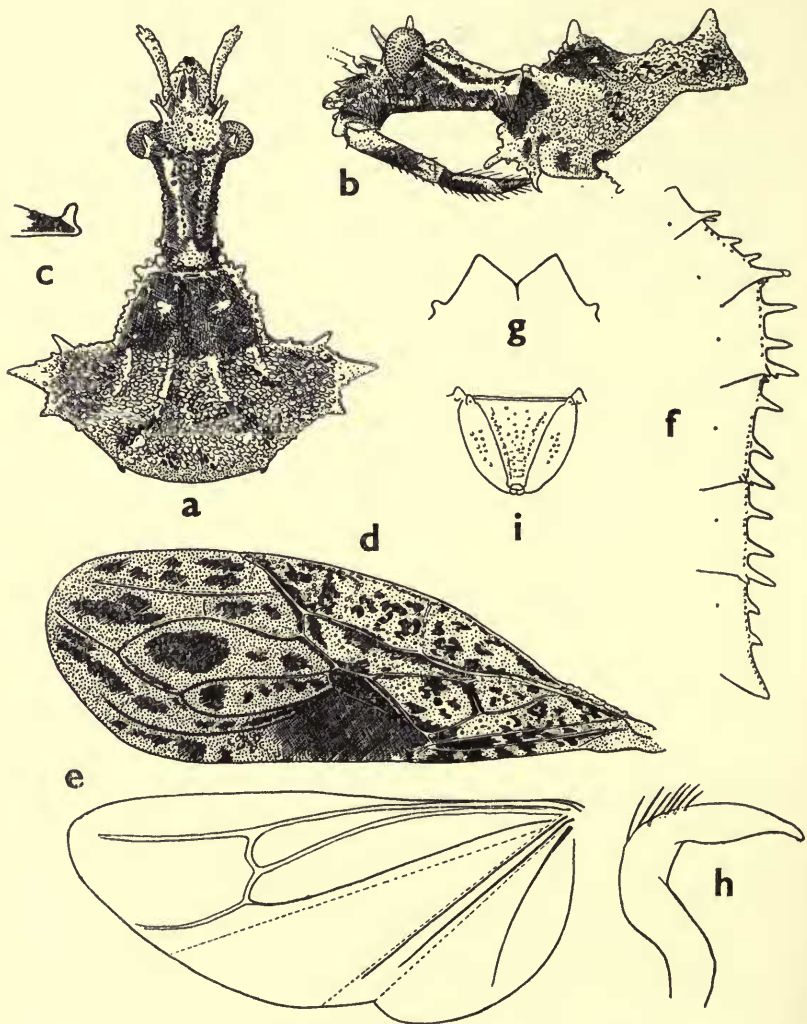


FIG. 33. *Centrocnemoides drescheri* gen. n., sp. n. A. Head and pronotum (dorsal view) ; B. head, pronotum and mesopleural tubercles (lateral view) ; C. scutellar spine (lateral view) ; D. hemelytron ; E. metathoracic wing ; F. connexivum (ventral view) ; G. apex of abdomen ♂ ; H. harpago ; I. apex of abdomen, ♀.

5th instar neanide (Text-fig. 3, E)

COLOUR. Testaceous. Basal segment of antennae, gula, postocular laterally, pronotum, mesonotum, abdomen dorsally strongly suffused with black ; connexivum

with somewhat obscure yellowish spots; abdomen ventrally with confluent black spots and suffusion. Segment 2 of antennae with faint brownish suffusion sub-apically. Basal segment of rostrum suffused with black; segment 2 with a sub-basal piceous annulation; segments 3 and 4 piceous. Tarsi with apical segment piceous apically; tibiae with apical, median and basal piceous annulations, the basal one somewhat indefinite; femora strongly suffused with black. Coxae and trochanters black, the anterior pair of the former with testaceous suffusion.

STRUCTURE. Postocular with a slender, sub-erect spine sub-laterally. Stridulatory furrow well-developed. *Fossula spongiosa* on anterior and median tibiae represented by small groups of setae. Abdomen dorsally with a moderately long, erect tubercle close to gland ostioles, those near the basal ostiole widely separated. Propleural and mesopleural spiracles with elongate orifice. Total length 12 mm.

SPECIMEN EXAMINED. One 5th instar neanide (data as in adults).

